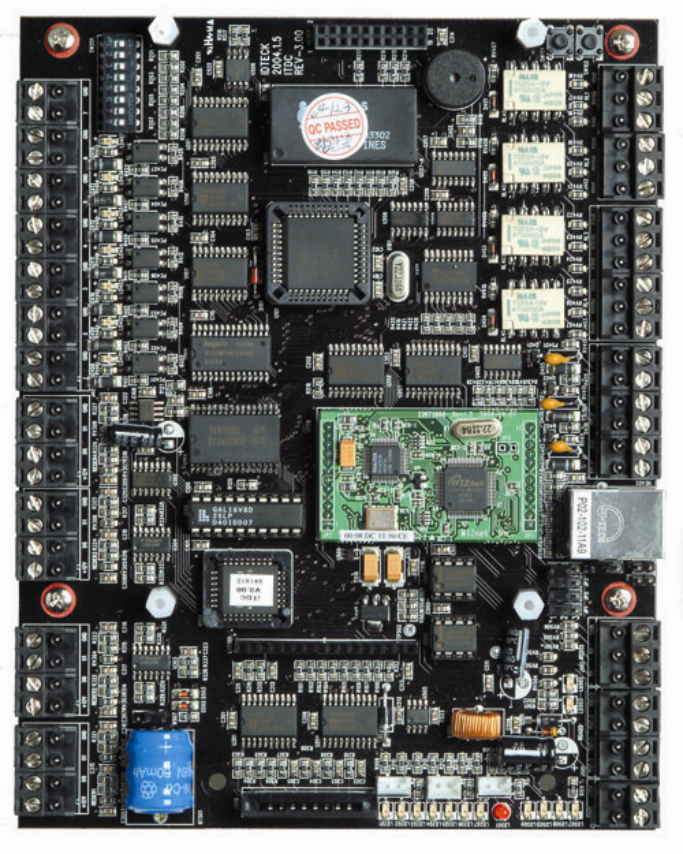
Star iTDC/EIO88
IDTECK iTDC-SR

Intelligent Multi Door [4]
Access Control Panel



IDTECK

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1. Important Safety Instructions

When using **Star EIO88 / iTDC / IDTECK iTDC-SR**, basic safety precautions should always be followed to reduce the risk of fire, electrical shock, and injury to persons.
In addition, the following safety guides should also be followed:

1. **Fully** read and understand all instructions and follow them completely.
2. **Follow** all warnings and instructions marked on the product.
3. **Do not** use liquid or aerosol cleaners. Use a damp cloth for cleaning. If necessary, use mild soap.
4. **Do not** use this product near water.
5. **Only** operate this product using the type of power source indicated. If you are not sure of the type of power supplied to your installation site, consult your dealer of local power company.
6. **Never** insert objects of any kind into the product or through the cabinet slots as they may touch voltage points and/or short circuit parts possibly resulting in fire or electric shock.
   Never spill liquid of any kind on the product.
7. **Never** disassemble this product by yourself; take the unit to a qualified service center whenever service or repair is required. Opening or removing the covers may expose you to dangerous voltages or other risks. Also, incorrect reassembly can cause electric shock when the unit is subsequently used.
8. **Unplug** this product from the Direct Current (DC) power source and refer to qualified service personnel under these conditions:
   a. When the power supply cord or plug is damaged or frayed.
   b. If liquid has been spilled on the product.
   c. If the product does not operate normally after following the operating instructions in this manual. Adjust only those controls that are covered by the operating instructions in this manual. Improper adjustment of other controls that are not covered by this manual may damage the unit and will often require extensive work by a qualified technician to restore normal operation.
   d. If the product exhibits a distinct change in performance.

2. General

The **Star iTDC / IDTECK iTDC-SR** is an intelligent 2~4 Door Access Controller designed to meet the market requirements for a simple and cost-effective access controller. It is designed to achieve low cost as well as high security, convenience and reliability. This user-friendly device allows the user to register 10,000~20,000(30,000/40,000/50,000) User ID numbers and register/delete/change the user card. And also, upon the number of those registered cards, 20,000 ~ 29,500(14,000/8,000/3,000) matters of data (exit / entrance) status can be saved in its event memory. Those 4 of the reader ports can be connected with Proximity Readers, Proximity + PIN Readers or biometric fingerprint (or face recognition) readers. Each reader can have its own operation mode, ether RF only, RF + Password, fingerprint, RF + fingerprint, RF + PIN + fingerprint. Independent 7 input ports can be connected with various devices such as Exit Buttons, Door Contact Sensors, PIR Sensors, Window Breakage Sensors and Fire Sensors to strengthen security. Input/Output ports can be expanded by adding an Expansion I/O Board. Optional Keypad and LCD Display module can be used to set-up functions manually and programming inputs and outputs. Using RS232 or RS422 communication, a network system can be set up, consolidating up to 256 units. All setting values including ID numbers, Inputs/Outputs, Real Time Clock, Time Schedules and all Event Transaction Reports can be downloaded / uploaded from/to the host computer with software supporting a variety of reporting formats. **Star iTDC / IDTECK iTDC-SR** can be installed and managed inside the security zone for higher security. Experience the ultimate high-level security access control system with **Star iTDC / IDTECK iTDC-SR**.

3. Features

- Intelligent Multi Doors [4] Access Control Panel (EIO88 Required to Control 3 and 4 Doors)
- Dynamic Control of Memory up to 50,000 Users / up to 29,500 Event Buffers
  : 1,000 ~ 20,000 / 30,000 / 40,000 / 50,000 Users
  1,000 ~ 20,000 / 3,000 / 8,000 / 14,000 Event Buffers
- Standalone/Network Communication via RS232 / RS422 / RS485 (Max.256ch),
  TCP/IP (Internal TCP/IP Module Required (Optional))
- Expansion I/O Board Available (EIO88: 8 Inputs / 8 Outputs)
- Independent 7 Inputs and 7 Outputs Including 4 Form-C Relay Outputs
- 4ea of Reader Port for Anti-Pass-Back Function: 26bit Wiegand and 4 / 8bit Burst for PIN
- 2 Men Operation
- ARM / DISARM Function for Alarm Panel
- 2 Levels Individual Door Opening Time Setting Available
- Remain ID & Event Data and Setting Value in case of Electric Outage
- Optical LCD Display and Keypad Connectable to Control for Standalone Operation, Manual Setting
- Duress Mode Function
- Alarm Event Monitoring using Tamper Switch (by Application Software)
- Communication Status via LED Indicator
- Options:
  LCD Display, Keypad
  Internal TCP/IP Module, Expansion I/O Board
- Compatible Software: STARWATCH iTDC PRO I / II

4. Specification

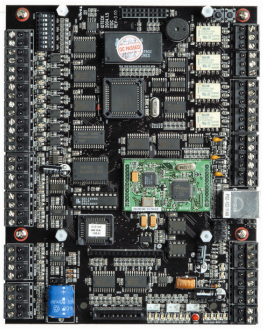
Model		iTDC	iTDC-SR
CPU		8bit Microprocessor	
Memory	**Program Memory**	64KByte ROM	
	Data Memory	512KByte SRAM (Battery back up)	
User		Users and Event Buffers Defined Available	
		1,000 ~ 20,000 / 30,000 / 40,000 / 50,000 Users	
Event Buffer		20,000 ~ 29,500 / 3,000 / 8,000 / 14,000 Event Buffers	
Power / Current		DC 12V, Max.350mA	
Reader Port		4ea (26bit Wiegand, 4 / 8bit Burst for PIN)	4ea (34bit Wiegand, 4 / 8bit Burst for PIN)
Communication		RS232 / RS422 / RS485 (Max.256ch)	
		TCP/IP (Internal TCP/IP Module Required (Optional))	

Baud Rate	9,600bps (Default) / 4,800bps, 19,200bps, 38,400bps (Selectable)
Input Port	7ea (Exit Button, Door Sensor, Aux#1, Aux#2, Aux#3, Aux#4, Aux#5)
Output Port	4ea (FORM-C Relay Output (COM, NO, NC) / DC12V~18V, Rating Max.2A)
	3ea (TTL Output / DC5V, Rating Max.20mA)
LED Indicator / Beeper	21 LED Indicators / Piezo Buzzer
Operating Temperature	0° to +65°C (+32° to +149°F)
Operating Humidity	10% to 90% relative humidity non-condensing
Dimension (W x H x T)	145mm x 7.3mm x 18mm (5.7” x 7.3” x 0.75”)
Weight	375g (0.82lbs)
Certification	FCC, CE
Options (Manual Setting available for Standalone Operation)	
LCD	Character LCD (2 Lines x 16 Char) / 65.6mm x 13.8mm (65.5” x 0.55”) Screen
Keypad	16 Key Numeric Keypad / Membrane
Internal TCP/IP Module	IIM7100A (TCP/IP Communication)
Expansion I/O Board	EIO88 (8 Inputs / 8 Relay Outputs)

5. Identifying Supplied Parts

Please unpack and check the contents of the box.

(Optional accessories, if purchased, may be included in the package.)



Main Unit (1ea)

User’s Manual (1copy)

Diode (4ea)

*** Optional Accessories**

EIO88 (Expansion I/O Board)

Keypad (16 keys), LCD Display Module

TCP/IP Module (IIM7100A)

6. Product Overview

6.1. Functions

Stand-Alone Operation

The **STAR iTDC** has such a capability of those 4 readers (4 Door Controls). The unit receives the card ID numbers from the proximity readers and determines whether or not to unlock the door. When an input signal is entered, for example from a sensor activated or an exit button pressed, the controller generates and logs an appropriate response by input signals. All events are stored into the memory buffers and sent to the host computer. The access controller is a true stand-alone device that, in the event of malfunction, will not affect to other units when used in conjunction with one another.**Operation with Host Computer**

All event transactions can be managed via the host computer. **STAR iTDC** saves the status of external input signal and un /authorized person's entrance/exit into the internal memory.

Each kind of data saved can be transmitted from the computer via regulated communication protocol. The data transmitted from the controller can be saved and maintained on the host PC.

It is also possible to output (print-out) the reports for the status of person going in/out and alarming.

Data Backup

The controller retains all user information and event data for 30 days, even in the event of power failure.

CAUTION: Battery Jumper for keeping memory data must be set correctly before the unit running. (See the INSTALLATION section)

Keypad

If the **STAR iTDC** is not connected to host PC, the integrated keypad and LCD display module can be used for the entire programming process manually such as card data registration/delete and each kind of function set-up/cancel.

Anti-Pass-Back

Using an additional proximity reader for exiting, the Anti-Pass-Back mode can be set up. Anti-pass-back mode prevents any entry or exit when the registered user does not properly follow one entry and one exit by the Anti-pass-back rule. APB only allowed exit for the user who has once got into the door first and it doesn't allow any user trying twice entry or twice exit in a row. As it were, as 2 of card readers equipped on the both sides of the entrance and exit of one door, the user has to let the card-reader read the user card properly each time of entrance/exit so that only person who got in with the card read by the card reader equipped on the entrance side can get out also only by letting the card reader read the card for exit. When this rule was not kept, the internal memory saves APB error. Also, when this kind of error happens, it is possible to make the output on the specific output port. (iTDC applied programs such as entrance/exit control and

diligence/laziness control – in/output set up – it is set up upon APB error selection.) APB function can be used for 2 doors each independently or linked together.(See Number of Door Control.)

Number of Door Control (2/3/4 Door Control)

It can control maximum 4 doors with 4 of card readers attached. In case of controlling 2 doors, the Reader 1 and 2 are equipped to the Door 1 and the Reader 3 and 4 are equipped to the Door2.

It means that APB can be applied to both doors each. If controlling 3 doors, APB can only be applied to the first door using reader 1 for entry and reader 2 for exit. Door 2 and 3 cannot use APB function as they have only one reader each(Reader3 for Door 2 and Reader 4 for Door 3). If controlling 4 doors, APB function cannot be used so each 4 reader will be equipped to the Door 1, 2, 3 and 4 each. (If controlling 3 and 4 doors, you must use optional Expansion I/O board (EIO88) to install Exit Button, Door Contact Sensor, Door Lock and Alarm devices for the Door 3 and 4.)

Input / Output

The **STAR iTDC** has 7 built-in inputs and 7 outputs (4 relay outputs and 3 TTL outputs). The input port can get those inputs such as exit button and fire sensor. Also, the door lock and alarm devices can be attached on those 4 of relay outputs so the in/output signal can be applied/used for various usages. Moreover, the output time can be also set-up on these output ports.

Optional Expansion I/O

1 of the optional Expansion I/O board (EIO88, additional 8 inputs and 8 output relays) can be connected to the **STAR iTDC**. It can control the output of the expansion I/O board by the iTDC input and the output of the expansion I/O board by the reader.

Input Device Type Set-up (NO, NC)

If the input device is normal open (NO) type sensor, the user has to setup the input device type to (NO) so that the iTDC will be activated when the input port makes short circuit to ground. If the input device is normal close (NC) type sensor, the user has to setup the input device type to (NC) so that the iTDC will be activated when the input port makes open circuit. All input device type can be programmed by software program on the host computer. (This setup is also applied to optional Expansion I/O board.)

Time Schedule Set-up

As specific time zone is set up, this function allows set-up action only within the set-up time range. Upon each time schedule code, the user can select the time zone and transfer to the device. For the time range of Monday to Friday and holiday (see Holiday Schedule set-up), maximum 5 different time zones a day can be divided and set-up. Each time schedule code can have each different (or same) one code for holiday.

Entrance Time Limit of the Registered Card – In case of the card registration, please input those time schedule codes upon each reader. Within the set-up time range, it normally operates. When out of the set-up time range, it outputs the time schedule error.

Input Port Operating Time Limit – Please input the time schedule codes for each input port. Within the set-up time range, it just ignores the signal even if the signal is recognized on the input port.

Output Port Operating Time Setup – Please input the time schedule codes for each output port. Within the set-up time range, every signal gets output on the output port.

Reader Mode Operating Time Setup – In case of the reader mode is set-up as RF + PW (password), just RF is necessary for normal operating within the set-up time range. When out of this time range, both of RF and PW (password) are necessary for normal operating.

Holiday Schedule Set-up

Except for Sunday, 100 holidays (legal holidays and day-off for shift working system) can be programmed for one holiday code. (As for those selected dates, it is possible to set up the time schedule so the entrance/exit can be possible only for the permitted time range.) Each holiday code can be set-up at each time schedule code.

Example: A. Holiday schedule 01 linked to time schedule 01,
Holiday schedule 02 linked to time schedule 02

B. Holiday schedule 02 linked to time schedule 01,
Holiday schedule 01 linked to time schedule 03

Door Open Alarm and Door Open by Force Alarm

The Door Open Alarm function is to notice the administrator that any case of the door opened even after the normal opening time and waiting time. (The output port can activate the output signal. The error status with the time can be saved and transmitted upon the PC program's request.) The Door Open by Force Alarm function is to activate the alarm when the door is opened by force. If the waiting time passed with this status, the door open time excess status will be activated again.

Duress Alarm

This function is used to notice any case that the door has to be opened by force. In case of duress, enter the 2 digits Duress Password and <ENT> key before the normal access process then the door will be opened as normal but the duress alarm is also generated at the same time and the duress alarm output will be activated to TTL output and alarm event will be sent to the host PC.

6.2. Board Layout

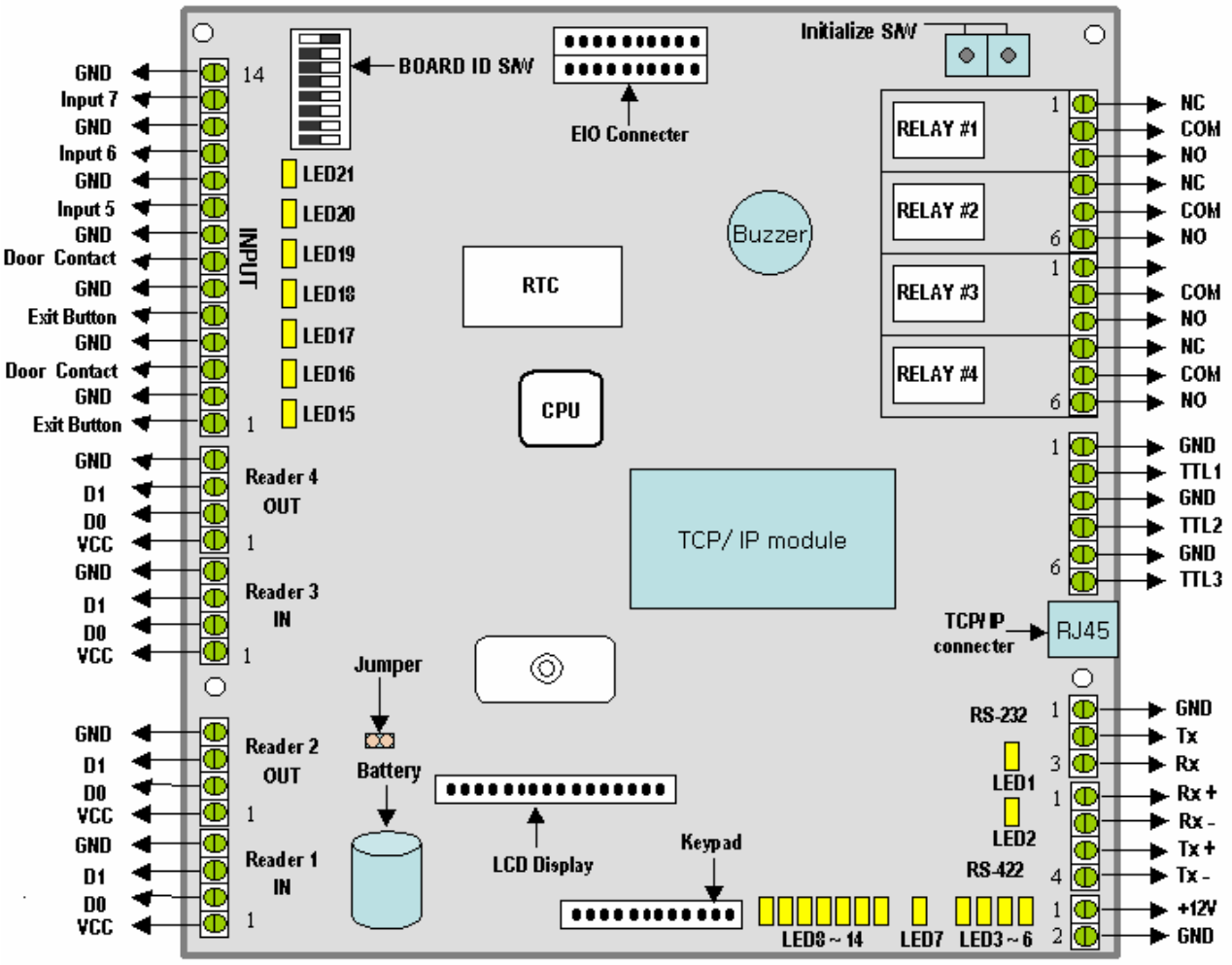


Figure: **Star iTDC** Control Board Layout

BOARD ID S/W

This BOARD ID S/W is for communication ID setting of STAR iTDC control board. As the device number that set up by the address set-up switch is used to communicate with the computer, it should be same as the computer.

EIO Connector

This EIO Connector is the port for connecting the optional EIO88 expansion I/O board. It is possible to expand 8 in/output each.

Initialize S/W

This Initialize S/W is to initialize and erase all user data from the memory. There are two tactile switches and the initialization is only active when the two tactile switches are pressed at the same time.

Relay #1 ~ Relay #4

These are 4 FORM-C (COM, NO, NC) relay outputs at DC12~24V, Max 2A current.

TTL #1 ~ TTL #3

These are 3 TTL output ports at DC5V TTL level, max. 20mA current.

The normal logical state of TTL output is Low (DC0V) and activates to High (DC5V).

TCP/IP connector

The **STAR iTDC** can have 1 of TCP/IP converter module internally equipped.

Picture: As shown in the picture '**STAR iTDC** Layout', the pin with the mark of an inverted triangle on the location of the TCP/IP module of **STAR iTDC** PCB is the Pin number 1. The TCP/IP module has the mark of number 1 on the both of the connecting pin (12pin connector). The TCP/IP module's pin number 1 should be connected to the pin number 1 of **STAR iTDC**.

Jumper Switch for TCP/IP, RS422 Communication (JP1 ~ JP4):

This is to select if LAN communication with the internal type of module should be used or RS 422 communication should be used.

The initial status is as the Figure (**STAR iTDC** Control Board Layout).

(Default: RS422 communication)

Jumper Switch for RS_422 Communication test (JP5~6):

As a communication test function of the set-up mode F4, this is for test of RS_422 port.

Extract jumper of JP3~4 and short JP5~6 by this jumper.

Initial status of JP5~6 is Open.

Jumper Switch for TCP/IP module selection (JP7):

This jumper switch is for selection of the TCP/IP internal module (IIM7100 or IIM7100A).

The initial status is as the Figure (**STAR iTDC** Control Board Layout). (Default: IIM7100A)

RS-232 Serial Communication Port

STAR iTDC has 1 of RS-232 communication port for such short distance individual connection with the PC.

RS-422 Serial Communication Port

This is RS422 communication port for such long distance connection of multiple boards up to 256 units to PC. The RS422/RS232 converter is necessary for connecting RS422 port to PC.

+12V and GND (Main Power)

This is main power connection of control board and **STAR iTDC** is working at DC12V and max 350mA current.

LED Expansion Port(J2~J4):

This port is for indicating the LED #1 ~ #2 (communication status LED) and LED #7 (power LED) externally through expansion.

Keypad

This is an optional keypad port and it can be used with the optional LCD display module for manual setup. It is possible to various functions' set-up/cancel and the card data register/delete

individually by the keypad. (But, the output time set-up of time schedule input and reader input is possible to be set up only on the PC program.)

LCD Display

This is an optional LCD Display port and it can be used with optional keypad for manual setup. It is for checking the device's set-up status through the LCD module. Also, by the keypad, it is possible to check the changing status of the users when any information changed upon set-up/cancel of each function and registration/delete of the card data.

Jumper for connecting the battery

This is a Battery Connection Jumper. Before normally using **STAR iTDC**, this jumper prevents electric discharge of the battery for keeping RAM data. It is shipped out as 'not-connected' from the factory. (Please see set-up jumper switch)

Reader #1 ~ Reader #4

It is possible to connect 4 of readers to the iTDC.

These are 4 proximity reader ports and each reader port supplies DC12V to the proximity reader and receives 26bit Wiegand output from the reader. If the user connects PINPAD Reader then the user has to make sure that the PINPAD Reader has 8bit burst output through Wiegand output.

Input #1 ~ Input #7

These are 7 Input Ports of the **STAR iTDC**.

Buzzer

This is internal Buzzer and it makes beep sounds every time the keypad is pressed from the optional keypad so the user can confirm how many keys are pressed

TCP/IP Module

This is the location for the optional TCP/IP module (IIM7100A) and the user has to install TCP/IP module at this location when the user would like to use TCP/IP communication port.

LED1 ~ LED2

These 2 LEDs indicate the status of communication. LED1 is RX status and it blinks when the data normally received from the PC. LED2 is TX status and it blinks when the data is being transmitted back to the PC after the data being totally treated as normal.

LED3 ~ LED6

These 4 LEDs indicate the status of TCP/IP module other than LED1~2 in case of communicating through the TCP/IP module. LED3 is Connection Status, LED4 is 10Mbps, LED5 is 100Mbps and LED6 is Collision Status indicator.

LED7

This red-colored LED is power indicator and it always on when the control board power is on.

LED8 ~ LED14

These 7 LEDs indicate output status. Each LED is on when the corresponding output is activated. LED8 is for Relay #1, LED9 is for Relay #2, LED10 is for Relay #3, LED11 is for Relay #4,

LED12 is for TTL 1, LED13 is for TTL 2, and LED14 is for TTL 3 output.

LED15 ~ LED21

These 7 LEDs indicate input status. Each LED is on when the corresponding input is activated (short circuit to ground). LED15 is for Input 1, LED16 is for Input 2, LED17 is for Input3, LED18 is for Input 4, LED19 is for Input 5, LED20 is for Input 6, and LED21 is for Input 7.

6.3. Optional Accessories

6.3.1 EIO88 Expansion I/O Board

The EIO88 board features:
- 8 Inputs ports
- 8 FORM-C Relay Output ports
- 4 Inputs can be configured to Door 3 ~ 4 as of exit buttons and door contact sensors.
- 4 Output Relays can be configured to Door 3 ~ 4 as of door locks and alarm devices.

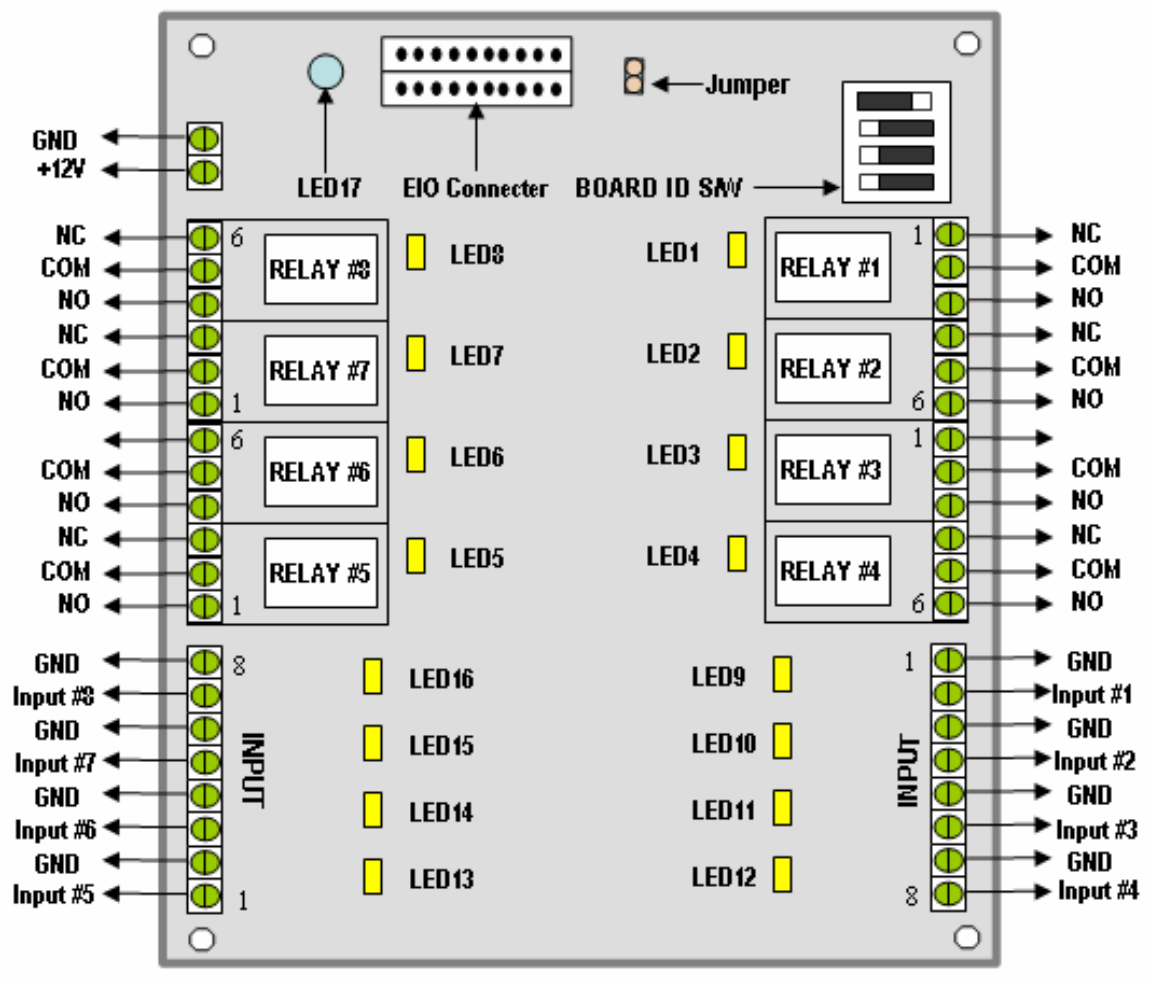


Figure: EIO88 Expansion I/O Board Layout

EIO Connector

This EIO Connector is the port for connecting to iTDC Main Control board. 1 EIO board is used for expanding of the in/output port of iTDC. The EI/O board port is connected to the

EI/O board port of the STAR iTDC.

BOARD ID S/W

The DIP switch is factory set as the above layout shown. DO NOT change the setting as it may cause wrong operation of EIO88 expansion I/O board.

+12V and GND (Main Power)

This is main power connection of expansion I/O board working at DC12V and max. 100mA current.

Relay #1 ~ Relay #8

These are 8 FORM-C (COM, NO, NC) relay outputs at DC12~24V and max current.

Input #1 ~ Input #8

These are 8 Input Ports.

LED17

This red-colored LED is power indicator.
And it always on when the EIO88 board power is on.

LED1 ~ LED8

These 8 LEDs indicate output status. Each LED is on when the corresponding output is activated.
LED1: Relay #1, LED2: Relay #2, LED3: Relay #3, LED4: Relay #4,
LED5: Relay #5, LED6: Relay #6, LED7: Relay #7, LED8: Relay #8

LED9 ~ LED16

These 7 LEDs indicate input status. Each LED is on when the corresponding input is activated.
LED9: Input #1, LED10: Input #2, LED11: Input #3, LED12: Input #4,
LED13: Input #5, LED14: Input #6, LED15: Input #7, LED16: Input #8

6.3.2 TCP/IP Module

The user can add an optional TCP/IP module (IIM7100A) and this module can be used if the user wants TCP/IP communication to the host PC.

6.3.3 LCD Display Module

The user can connect the optional LCD display module to the iTDC main control board and the user can use the LCD display module with the optional keypad when the user sets up all functions to the iTDC manually.

6.3.4 Keypad

The user can connect the optional Keypad to the iTDC main control board and the user can use the keypad with the LCD display module when the user sets up all functions to the iTDC manually.

7. Installation Tips & Check Point

Installing the **Star iTDC / IDTECK iTDC-SR** is a relatively easy task.
It can be installed with the common hand tools and readily available communications wire.
This section provides information about wiring, wire runs, and the other information to make the installation quick and easy.

7.1. Check Points Before Installation

7.1.1 Selection of Cable

System installation cabling will be configured as follow.

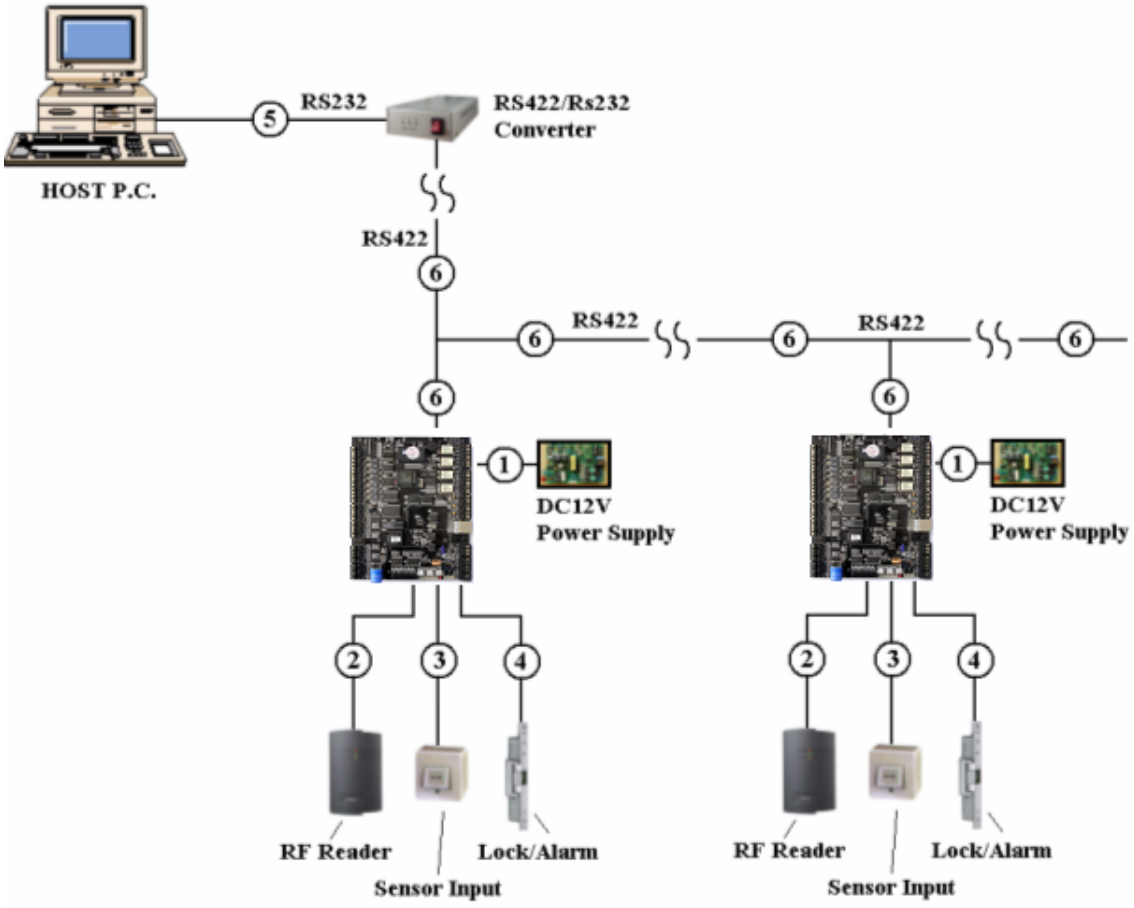


Figure: System Installation Layout

7.1.2 Recommended Cable Type and Permissible Length of Cable

Reference	Description	Cable Specification	Maximum Distance
①	iTDC Power (DC12V) DC Power -> iTDC	Belden #9409, 18 AWG 2 conductor, unshielded	30m
②*	Reader (Power and Data) Extra Reader -> iTDC	Belden #9512, 22 AWG 4 conductor, shielded	150m
		Belden #9514, 22 AWG 8 conductor, shielded	
③	Door Contact Exit Button Sensor Input Input -> iTDC	Belden #9512, 22 AWG 4 conductor, shielded	300m
		Belden #9514, 22 AWG 8 conductor, shielded	
④	Door Lock, Alarm Device Lock (Alarm) -> iTDC	Belden #9409, 18AWG 2 conductor, unshielded	300m
⑤	RS232 Cable Converter -> Host P.C.	Belden #9829, 24 AWG 2-twisted pair, shielded	15m
⑥	RS485 Cable iTDC -> iTDC iTDC -> Converter	Belden #9829, 24 AWG 2-twisted pair, shielded	1,200m
	RS422 Cable iTDC -> iTDC iTDC -> Converter	Belden #9830, 24 AWG 3-twisted pair, shielded	

*: Need thicker wire if you connect the reader with high current consumption.

7.2 Check Point During Installation

7.2.1 Termination Resistor

The termination resistors are used to match impedance of the network to the impedance of the transmission line being used. When impedance is mismatched, the transmitted signal is not completely absorbed by the receiver and a portion of signal is reflected back into the transmission line.

The decision whether or not to use termination resistors should be based on the cable length and the data rate used by the communication system.

For example, if the user uses 9,600 baud rate and 1,200-m length of cable, the propagation velocity of the cable is 0.66 x speed of light (This value is specified by the cable manufacturer), if we assume the reflections will damp out in three round trip up and down the cable length, the transmitted signal will be stabilized 18.6us after the leading edge of a bit. Since the data bit is captured in the middle of the bit that is approximately 52us after the leading edge of a bit. The reflection stabilizing time 18.6us is much before the center of the bit therefore the termination resistors are not required.

However, if the user installs the cable to maximum length, the impedance of the cable and the network are mismatched and the transmitted signal is overlapped by the reflected signal.

In this case, it is recommended to add the termination resistors to the end of the receiver lines. A 120Ω resistor can be used for termination resistor in parallel between the receiver lines "A" and "B" for 2 wires RS485 system or "RX+" and "RX-" for 4 wires RS422 system. A termination resistor of less than 90Ω should not be used and no more than 2 termination resistors should be used in one networking system.

7.2.2 How To Connect Termination Resistors

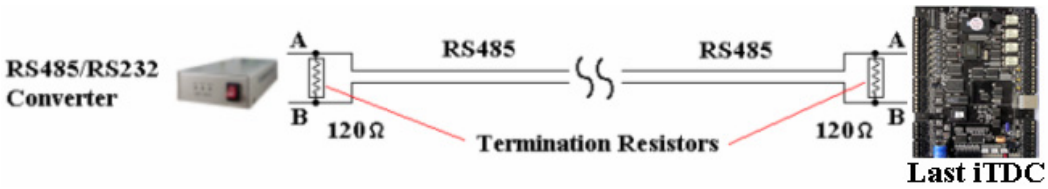


Figure: Termination resistors for 2 wire RS485 communication system

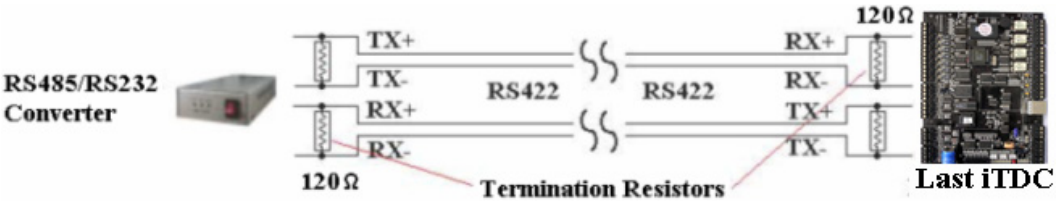


Figure: Termination resistors for 4 wire RS422 communication system

7.2.3 Grounding System For Communication Cable

To use such proper grounding system on the communication cable is recommended. The best method for grounding system is to put the shield wire of the communication cable to the 1st class earth grounding; however it is not so easy to bring the earth ground to the communication cable and also the installation cost is raised.

There will be three grounding points where the user can find during installation;

1) Earth Ground
2) Chassis Ground
3) Power Ground

The most important point for grounding system is not to connect both ends of shield wires to the grounding system; in this case, there will be a current flow through the shield wire when the voltage level of both ends of shield wire is not equal and this current flow will create noise and interfere to communications. For the good grounding, to connect ONLY one end of shield wire of communication cable to the grounding system is recommended; If the user finds the earth ground nearby, then connect one end of shield wire to the earth ground; If the user does not have the earth ground nearby, then find the chassis ground and connect one end of shield wire to the chassis ground; If the user does not find both earth ground and chassis ground, then connect one end of shield wire to the power ground. (GND of 505R)

Please be noticed about that, if the chassis ground is not properly connected to the earth and

floated from the ground level, then grounding to the chassis ground will give the worst communication; in this case, to use the power ground instead of chassis ground is recommended.

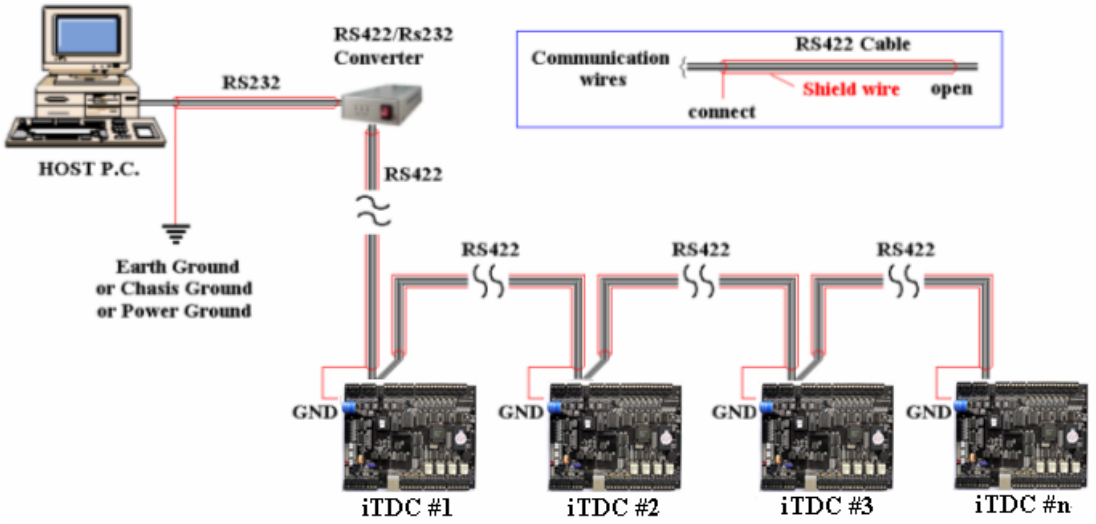


Figure: Grounding system

7.2.4 Reverse Diode Connection

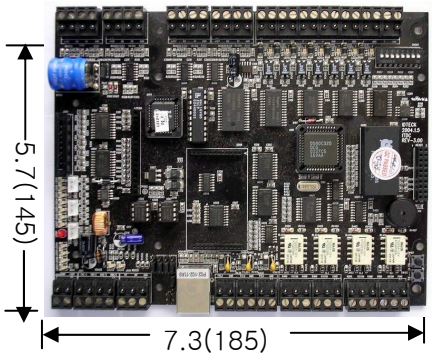
If the user connects an inductor (Door Locks or Alarm device) to the output relays, there will be a high surge voltage created while the inductor is turning on and off. If the user does not connect the reverse diode, the surge voltage will be transferred and damage to the electronic circuit of the controller. It is strongly recommended to add a reverse diode between the inductor coils to absorb this surge voltage.

Figure: Reverse Diode connection

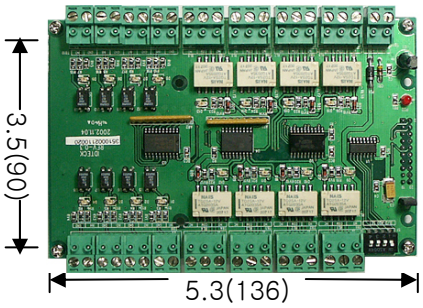
8. Installation

8.1 Dimensions

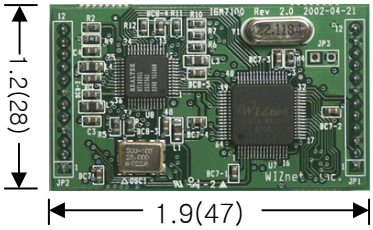
Unit: inch (mm)



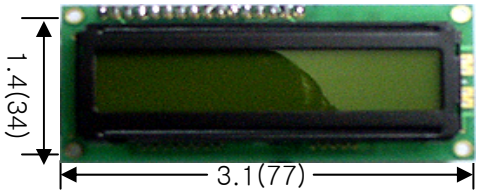
iTDC DIMENSION



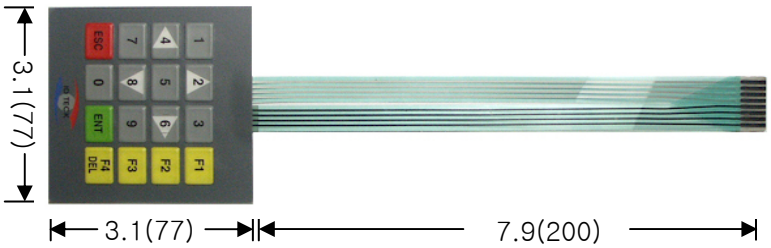
EIO88 DIMENSION



TCP/IP MODULE DIMENSION



LCD MODULE DIMENSION



KEYPAD DIMENSION

8.2 Backup Battery Jumper

The **Star iTDC** has a jumper for the backup battery connection, which is left open circuit to prevent any current consumption of backup battery (Figure: Jumper setting). Before the iTDC operation, it needs to be connected so that the backup battery can retain the memory during power failure.

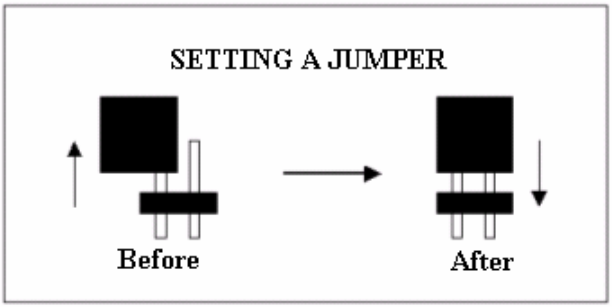
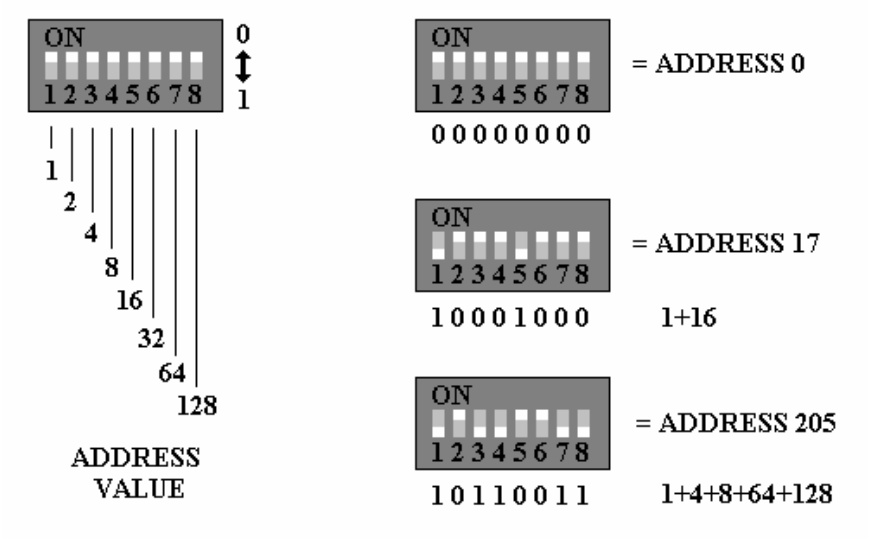


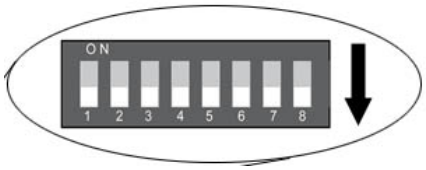
Figure: JUMPER SETTING

8.3 DIP SWITCH (BOARD ID)

There is 8-bit DIP SW for address setting and it turns to 8-bit binary code as below and each bit has fixed address value, the address is calculated the sum value of each bit set to "1" position. The device number that is set up by the address set-up switch should be same as the computer since it is such device number that is used when communicating with the computer.

Example





NOTE: To select the address switch the address switch towards the left side of the PCB.

8.4 Wiring

8.4.1 Power

Connect (+) wire of DC 12V power to +12V terminal

Connect GND (-) wire of DC 12V power to GND terminal

8.4.2 Input Connection

Exit Button Connection (Input #1, Input #3)

- Connect one wire from an Exit Button to Input #1 for the Door1 and to Input #3 for Door2
- Connect the other wire from the Exit Button to the GND

Door Contact Sensor Connection (Input #2, Input #4)

- Connect one wire from a Door Contact Sensor to Input #2 for the Door1 and to Input #4 for Door2
- Connect the other wire from the Door Contact Sensor to GND

Summary of Input connections to corresponding Doors

2-Door Control
Door1: Input #1 to Exit Button, Input #2 to Door Contact Sensor
Door2: Input #3 to Exit Button, Input #4 to Door Contact Sensor

3-Door Control
Door1: Input #1 to Exit Button, Input #2 to Door Contact Sensor

Optional EIO88 Expansion I/O Board controls the Exit Button and Door Contact Sensor for Door2 and Door3.
Door2: EIO88 Input #1 to Exit Button, EIO88 Input #2 to Door Contact
Door3: EIO88 Input #3 to Exit Button, EIO88 Input #4 to Door Contact

4 Door Control
Door1: Input #1 to Exit Button, Input #2 to Door Contact Sensor
Door2: Input #3 to Exit Button, Input #4 to Door Contact Sensor
Optional EIO88 Expansion I/O Board controls the Exit Button and Door Contact Sensor for Door3 and Door4.
Door3: EIO88 Input #1 to Exit Button, EIO88 Input #2 to Door Contact
Door4: EIO88 Input #3 to Exit Button, EIO88 Input #4 to Door Contact

Auxiliary Input Connection (Applied to Input #5, Input #6 and Input #7)

- Connect one wire from an Auxiliary Input Device to one of the Input #5, #6 and #7.
- Connect the other wire from the Auxiliary Input Device to GND

Note: If you have EIO88 Expansion I/O Board, you can use EIO88 Input #5, Input #6, Input #7 and Input #8 for additional auxiliary input devices.

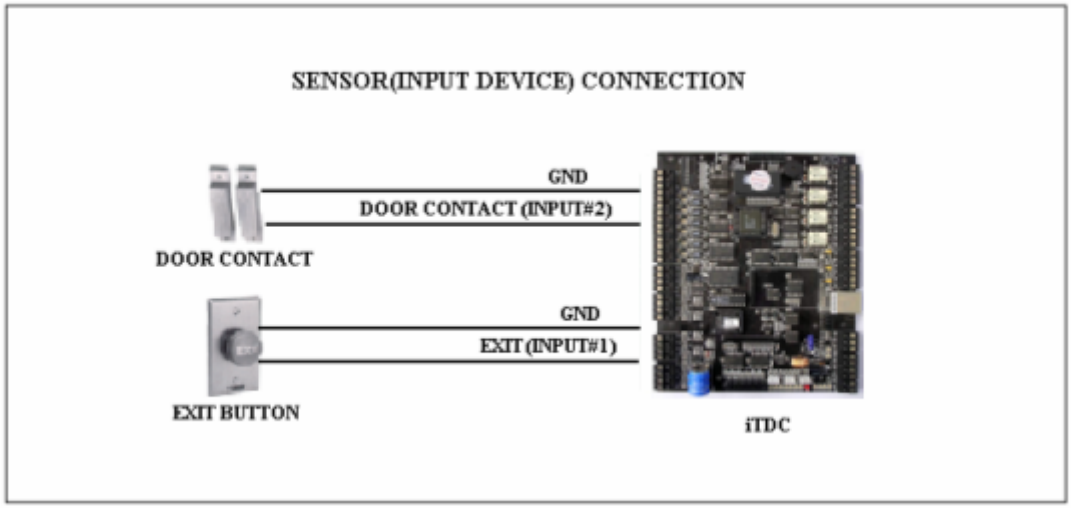


Figure: INPUT DEVICES CONNECTION

8.4.3 Output Connections

Door Lock (Power Fail Safe) Connection (Door1: Relay #1, Door2: Relay #3)

- Connect COM port of Relay #1 and Relay #3 to +12V
- Connect NC port of Relay #1(Door1) and Relay #3 (Door2) to (+) wire of door lock device
- Connect GND port to (-) wire of door lock devices

Door Lock (Power Fail Secure) Connection (Door1: Relay #1, Door2: Relay #3)

- Connect COM port of Relay #1 and Relay #3 to +12V
- Connect NO port of Relay #1(Door1) and Relay #3 (Door2) to (+) wire of door lock device
- Connect GND port to (-) wire of door lock devices

Alarm Device Connection (Door1 Alarm: Relay #2, Door2 Alarm: Relay #4)

- Connect COM port of Relay #2 and Relay #4 to +12V
- Connect NO port of Relay #2(Door1) and Relay #4 (Door2) to (+) wire of Alarm devices
- Connect GND port to (-) wire of Alarm devices

Summary of Output Relay connections to corresponding Doors

2-Door Control	Door1: Relay #1 to Door Lock, Relay #2 to Alarm Device Door2: Relay #3 to Door Lock, Relay #4 to Alarm Device
3-Door Control	Door1: Relay #1 to Door Lock, Relay #2 to Alarm Device **The Door Lock and the Alarm Devices for Door2 and Door3 are controlled by the optional EIO88 Expansion I/O Board.** Door2: EIO88 Relay #1 to Door Lock, EIO88 Relay #2 to Alarm Door3: EIO88 Relay #3 to Door Lock, EIO88 Relay #4 to Alarm
4 Door Control	Door1: Relay #1 to Door Lock, Relay #2 to Alarm Device Door2: Relay #3 to Door Lock, Relay #4 to Alarm Device **The Door Lock and the Alarm Devices for Door3 and Door4 are controlled by the optional EIO88 Expansion I/O Board.** Door3: EIO88 Relay #1 to Door Lock, EIO88 Relay #2 to Alarm Door4: EIO88 Relay #3 to Door Lock, EIO88 Relay #4 to Alarm

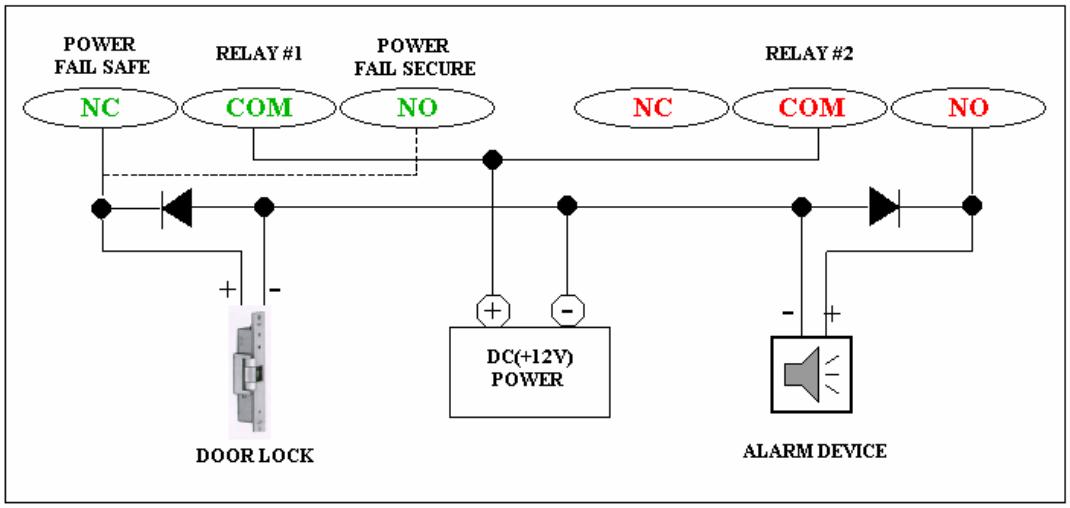


Figure: DOOR LOCK, ALARM DEVICE CONNECTION

NOTE: Add DIODES as shown above.
DIODE: Fast recovery DIODE (current: Min. 1A), 1N4001 ~ 1N4007 or similar

8.4.4 Reader Connections

Proximity Reader Connection

- Connect (+) wire of the Proximity Reader to +12V of Reader port
- Connect (-) wire of the Proximity Reader to GND of Reader port
- Connect Data-0 wire of the Proximity Reader to D0 of Reader Port
- Connect Data-1 wire of the Proximity Reader to D1 of Reader Port

Summary of Proximity Reader locations to corresponding Doors

2-Door Control	Door1: Reader #1 to Door1 Entrance, Reader #2 to Door1 Exit
	Door2: Reader #3 to Door2 Entrance, Reader #4 to Door2 Exit
3-Door Control	Door1: Reader #1 to Door1 Entrance, Reader #2 to Door1 Exit
	Door2: Reader #3 to Door2 Entrance, Exit Button to Door2 Exit
	Door3: Reader #4 to Door3 Entrance, Exit Button to Door3 Exit

The optional EIO88 Expansion I/O Board is necessary to control the Door Locks and the Exit Buttons for Door2 and Door3.

4 Door Control	Door1: Reader #1 to Door1 Entrance, Exit Button to Door1 Exit
	Door2: Reader #2 to Door2 Entrance, Exit Button to Door2 Exit
	Door3: Reader #3 to Door3 Entrance, Exit Button to Door3 Exit
	Door4: Reader #4 to Door4 Entrance, Exit Button to Door4 Exit

The optional EIO88 Expansion I/O Board is necessary to control the Door Locks and the Exit Buttons for Door3 and Door4.

- **Compatible Readers**:
  Star iTDC: Standard 26bit Wiegand Format Proximity Readers
  Standard 26bit Wiegand + 8bit(or 4bit) Burst Format Proximity and Keypad Readers.
  IDTECK iTDC-SR: Standard 34bit Wiegand Format Proximity Readers
  Standard 34bit Wiegand + 8bit(or 4bit) Burst Format Proximity and Keypad Readers.

- **Recommended Readers**:
  Star iTDC: RF10, RF20, RF30, RF70, RF500, iPASS10, iPASS20, RFK101
  IDTECK iTDC-SR: SR10, SR101

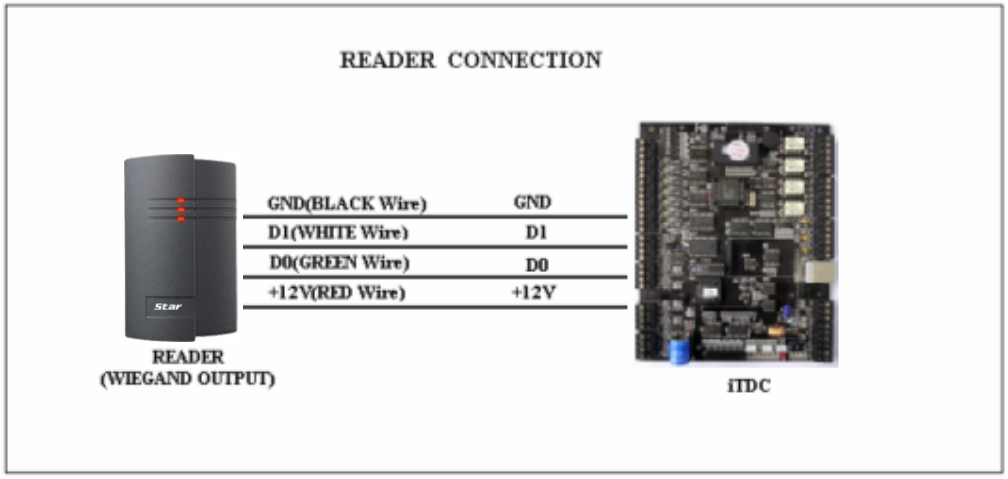
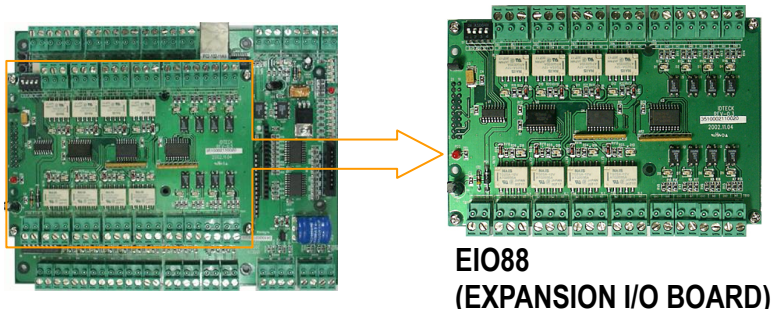


Figure: READER CONNECTION

8.4.5 Optional Accessory Connections

Expansion I/O Board connection (EIO88)

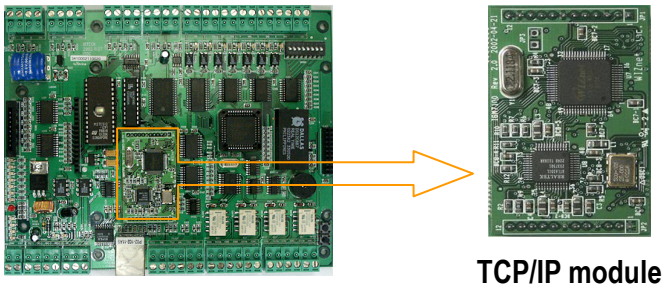
- Connect the EIO88 Expansion I/O Board to **Star iTDC** as shown on below.



EIO88
(EXPANSION I/O BOARD)

TCP/IP Module Connection (IIM7100A)

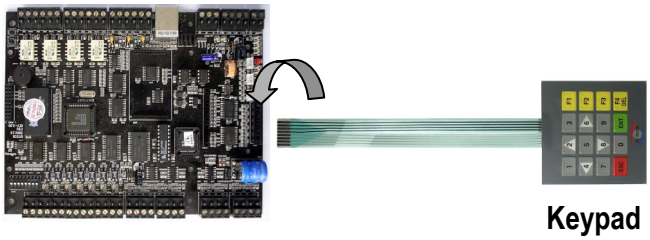
- Connect the IIM7100A TCP/IP Module as shown on below.



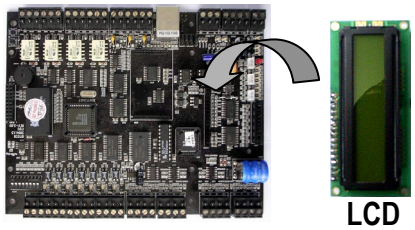
TCP/IP module

Keypad and LCD Display Connection

- Connect the Keypad and LCD Display to the Keypad and LCD ports as shown on below.



Keypad



LCD

9. Communication

9.1 Communication Port Test(Loop Test)

This is a Loop test for communication test of [SETUP F4] (self-diagnosis functions).
The user can check for communication state between the iTDC and the Cable.

9.1.1 RS232 Port Test

COMM TEST	☞. Before this communication test, Connect the RS232-RX and RS232-TX wires together.
TX data = 0 **COMM fail**	☞. This test is a loop test and the iTDC sends a character to the TX port and check whether the RX port receives the character or not. If an error comes out, please contact our service facility.
COMM test pass!! **Press any key...**	☞. After the test is done, the LCD will display “COMM test pass!!”. Press any key to return to the setup menu.

9.1.2 RS422 Port Test

COMM TEST

☞. Before this communication test,
Connect the Rx(-) and Tx(-), Rx(+) and Tx(+) wires.
Note: In case of RS-422 test, JP3, 4 disconnection and JP5, JP6 short
After the test is done, short pin1, 2 (or 2,3) of the JP3, JP4.

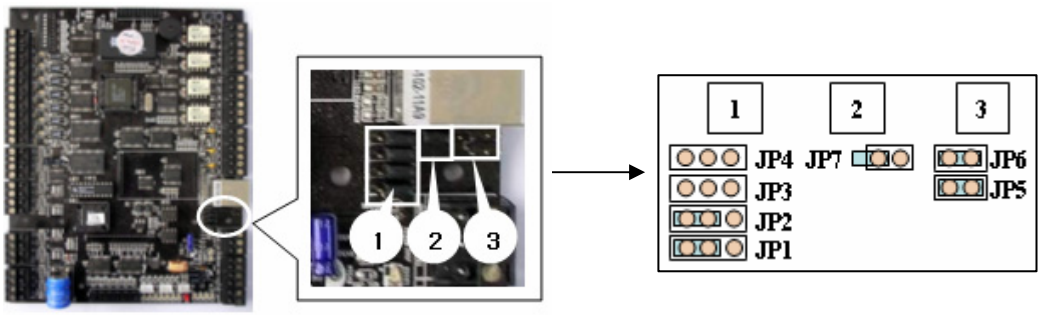


Figure: Jumper switch location and Jumper switch setting for RS422 communication test

9.2 RS232 Communication Port Connection

A 9-pin connector (Serial communication connector, female) is required to connect the **Star iTDC** to a host computer via RS232 communication. Please follow the instructions.

- Connect RS232-TX port of iTDC to the pin #2 of the 9-pin connector.
- Connect RS232-RX port of iTDC to the pin #3 of the 9-pin connector.
- Connect RS232-GND of iTDC to the pin #5 of the 9-pin connector.
- Plug in the 9-pin connector to COM1 or COM2 Port of the host PC.
- Install and run **Star iTDC** Application Software.

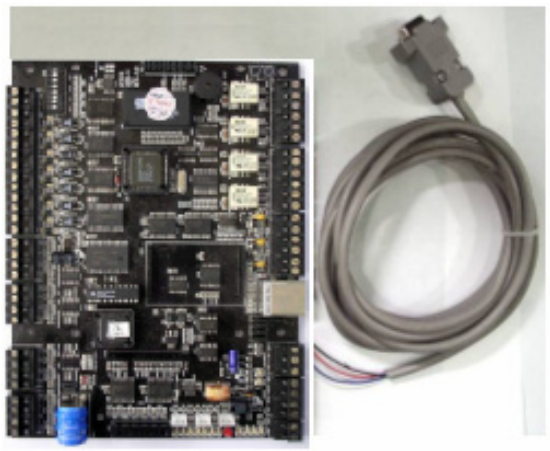


Figure: RS-232 COMMUNICATON

9.3 RS-422 COMMUNICATION PORT CONNECTION

9.3.1 Jumper Switch Setting

Before the RS422 Communication, the jumper switch needs to be setting with the figure of the below.

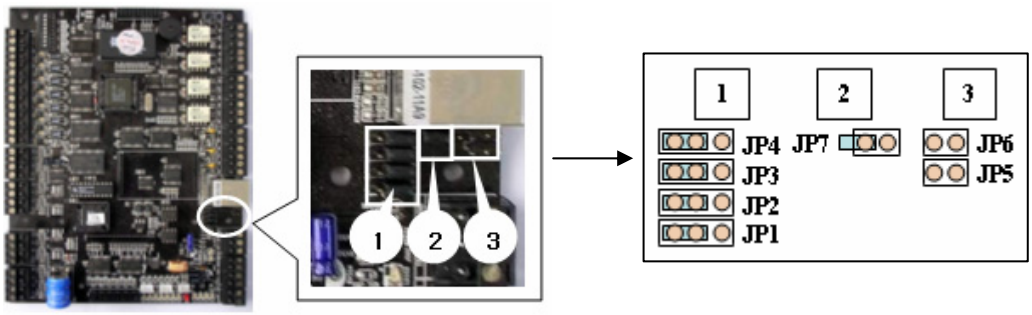
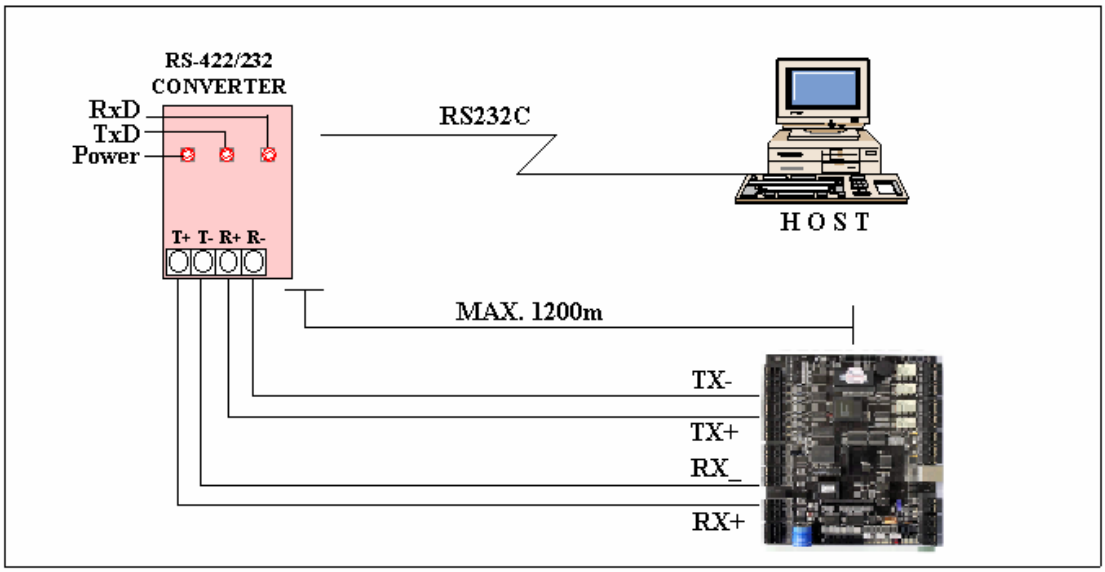


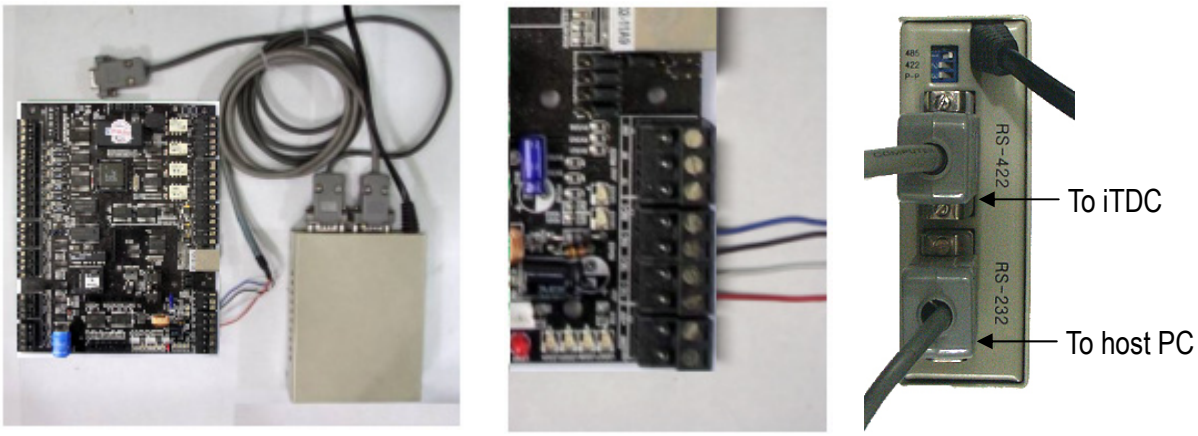
Figure: Jumper Switch location and setting for RS_422 communication

9.3.2 RS-422 CONNECTION (STAND ALONE)

RS422/RS232 converter (CNP200) is required to use RS422 communication between the **Star iTDC** and a host computer. Please follow the instructions.

- Connect RS422-TX(+) of the **Star iTDC** to RS422-RX(+) port of the converter.
- Connect RS422-TX(-) of the **Star iTDC** to RS422-RX(-) port of the converter.
- Connect RS422-RX(+) of the **Star iTDC** to RS422-TX(+) port of the converter.
- Connect RS422-RX(-) of the **Star iTDC** to RS422-TX(-) port of the converter.
- Plug in the RS232 9-pin connector of the converter to the COM1 or COM2 Port of the PC.
- Install and run **Star iTDC** Application Software.





a. Between **Star iTDC** and CNP200 b. RS 422 port connection c. CNP200 setting

Figure: RS-422 Communication between **Star iTDC** and Host Computer

9.3.3 RS-422 Connection (Multiple **STAR iTDC** Connections)

RS422/RS232 converter is required to use RS422 communication between multiple iTDCs and a host computer. Please follow the following instructions.

1 unit of iTDC can use a TCP/IP internal module for communications. And an iTDC used TCP/IP internal module can communicate with other iTDC Controllers by RS422 method.

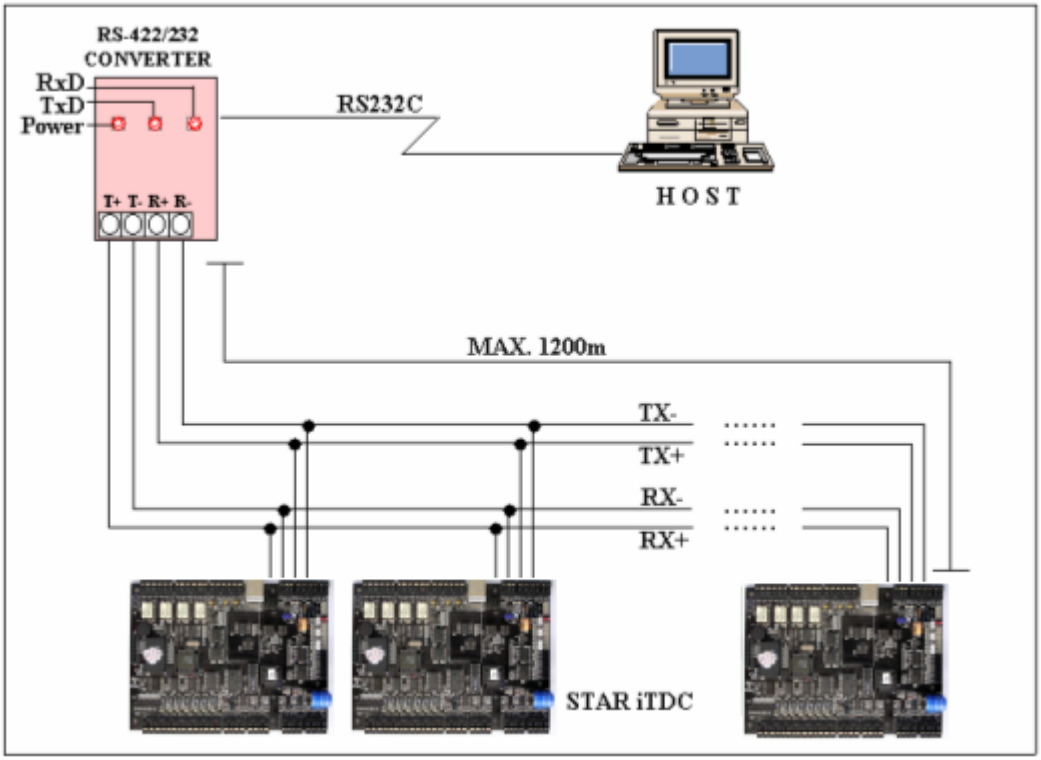
In this case, the communication must be connected via RS422 method.

First, you have to connect all RS422 port of all iTDCs in parallel.

- Connect RS422-TX(+) of one iTDC to RS422-TX(+) of another iTDC.
- Connect RS422-TX(-) of one iTDC to RS422-TX(-) of another iTDC.
- Connect RS422-RX(+) of one iTDC to RS422-RX(+) of another iTDC.
- Connect RS422-RX(-) of one iTDC to RS422-RX(-) of another iTDC.

Second, you have to connect one of RS422 port of iTDC to RS422/RS232 converter.

- Connect RS422-TX(+) of the one iTDC to RX(+) port of the converter.
- Connect RS422-TX(-) of the one iTDC to RX(-) port of the converter.
- Connect RS422-RX(+) of the one iTDC to TX(+) port of the converter.
- Connect RS422-RX(-) of the one iTDC to TX(-) port of the converter.
- Plug in the RS232 9-pin connector of the converter to the COM1 or COM2 Port of the PC.
- Install and run iTDC Application Software.



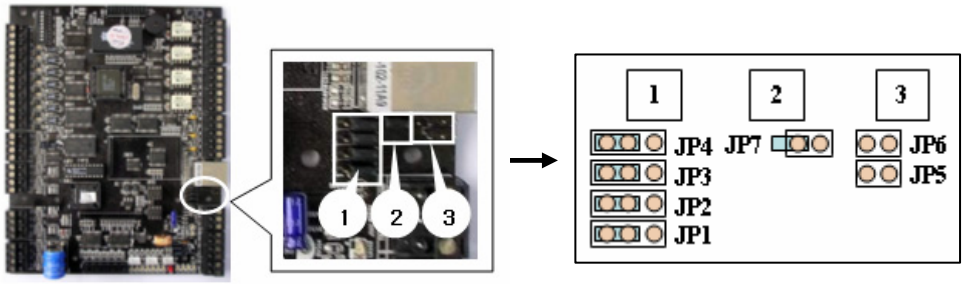
9.4 DIAL UP MODEM

Please, see the Software manual.

9.5 TCP/IP MODULE (INTERNAL VERSION)

Please, see the Software manual.

9.5.1 Star iTDC / IDTECK iTDC-SR (Over V 3.0) Communication Jumper Switch Setup



1) Jumper switch for TCP/IP, RS422 Communication selection
2) Jumper switch for TCP/IP module selection
   IIM7100 (IGM7100), IIM7100A
3) Jumper switch for 422 communication test (at Setup F4)

(1) Jumper Switch Setting

Before the RS422 Communication, the jumper switch needs to be setting with the figure of the below.

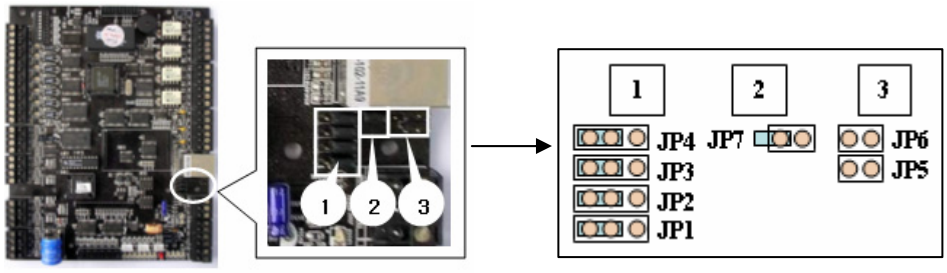
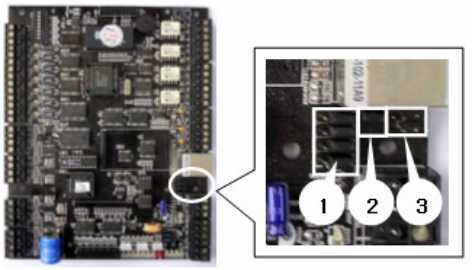
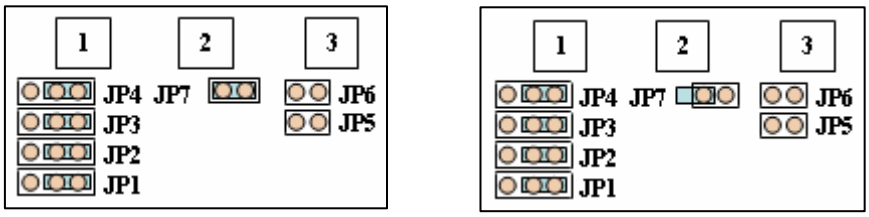


Figure: Jumper Switch location and setting for RS_422 communication

(2) Jumper Switch Setting (Over Star iTDC V 3.0 / IDTECK iTDC-SR (Over V 3.0))

Before the LAN (TCP/IP module) Communication, the jumper switch needs to be setting with the figure of the below.



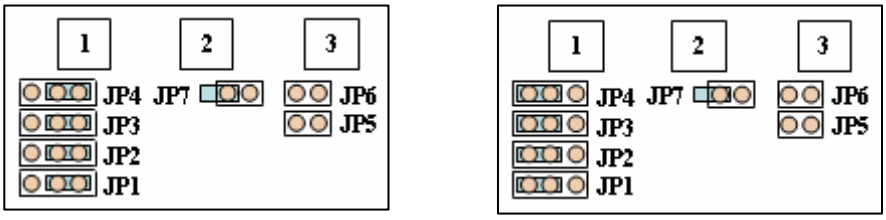


IGM7100 (In case of old module) **IIM7100A (In case of new module)**

Figure: Jumper Switch location and setting for LAN (TCP/IP module) communication

(3) Multi drop Connection (by TCP/IP internal module)

This uses LAN (TCP/IP) communication between multiple **Star iTDCs / IDTECK iTDC-SR** and a host computer. Install the same as <Figure: Multi drop connection (by TCP/IP internal module)>. Set the jumper switch the same as <Figure: Jumper switch setting for Multi drop connection (by TCP/IP internal module)>



STAR iTDC #1 **STAR iTDC #2 ~ #N**

In this example **STAR iTDC #1** uses IIM7100A.

Figure: Jumper switch setting for Multi drop connection (by TCP/IP internal module)

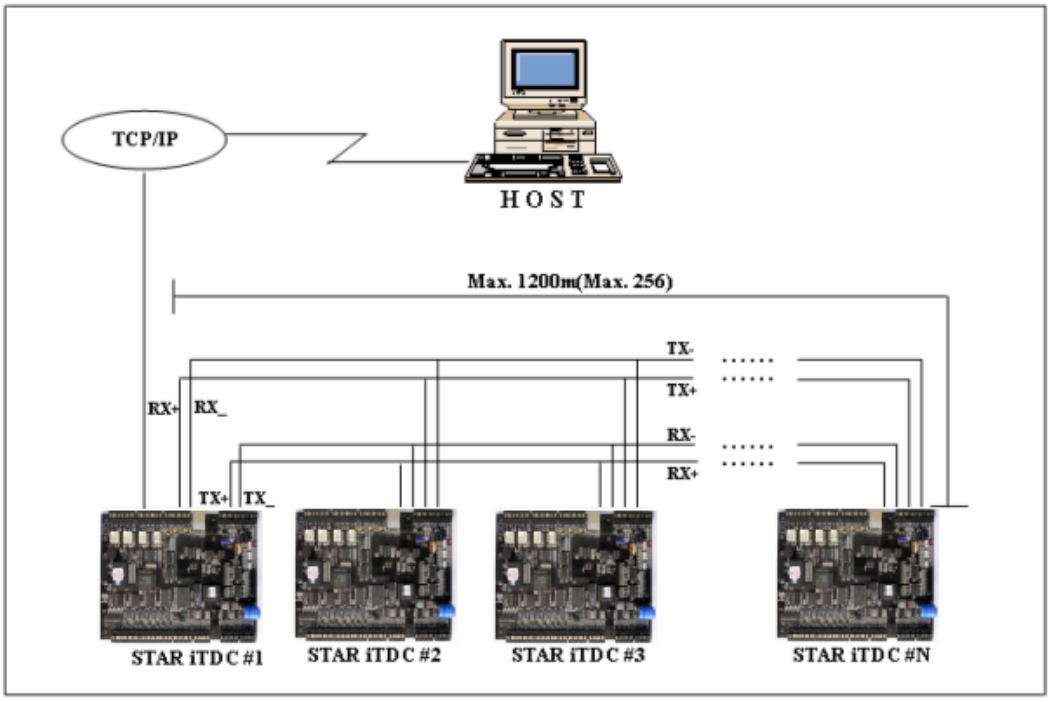


Figure: Multi drop connection (by TCP/IP internal module)

9.6 TCP/IP Converter (External Version)

Please, see the Software manual.

10. Operation Status

10.1 LED Indicators of the **Star iTDC**

The LEDs for indicating the status of the STAR iTDC are located as shown in the Figure: STAR iTDC Layout. Each LED will be turned on and off as the following status of the STAR iTDC.

The LEDs for indicating the status of the **Star iTDC** are located as shown in the Figure: **Star iTDC** Layout. Each LED will be turned on and off as the following status of the **Star iTDC**.

LED1 ~ LED2

These two LEDs indicate the communication status. The LED1 blinks while the communication signal is normally being received from the PC. The LED2 blinks while the **STAR iTDC** is sending the signals back to the PC after the data being totally treated as normal.

LED1: RxD, LED2: TxD

LED3 ~ LED6

If the TCP/IP module is installed, these LEDs indicate the status of the TCP/IP module.

LED3: Connection Status, LED4: 10M bps, LED5: 100M bps, LED6: Collision Status

LED7

This LED is always on if the iTDC is powered on.

LED8 ~ LED14

These LEDs indicate the status of the Output ports. The LED is turned on while the output is activated to the output port.

LED8: Relay #1, LED9: Relay #2, LED10: Relay #3, LED11: Relay #4

LED12: TTL #1, LED13: TTL #2, LED14: TTL #3

LED15 ~ LED21

These LEDs indicate the status of the Input ports' signal. When the LED light is on, it means that the signal has been input to the input port. (NC type input device) When NO type input device is connected, the LED is on when the sensor signal is not activated and the LED is off only when the input is activated.

LED15: Input #1, LED16: Input #2, LED17: Input #3, LED18: Input #4

LED19: Input #5, LED20: Input #6, LED21: Input #7

10.2 LED Indicators of the **EIO88 Expansion I/O Board**

The LEDs for indicating the status of the EIO88 Expansion I/O Board are located as shown in the Figure: EIO88 Expansion I/O Board Layout. Each LED will be turned on and off as the following status of the EIO88 Expansion I/O Board.

LED17

This LED is for indicating the power status and always on if the EIO88 Expansion I/O Board is powered on.

LED1 ~ LED8

These LEDs indicate the status of the Output ports of EIO88 Expansion I/O Board. The LED is turned on while the output is activated to the output port.

LED1: Relay #1, LED2: Relay #2, LED3: Relay #3, LED4: Relay #4

LED5: Relay #5, LED6: Relay #6, LED7: Relay #7, LED8: Relay #8

LED9 ~ LED16

These LEDs indicate the status of the Input ports' signal. When the LED light is on, it means that the signal has been input to the input port. (NC type input device) When NO type input device is connected, the LED is on when the sensor signal is not activated and the LED is off only when the input is activated.

LED9: Input1, LED10: Input2, LED11: Input3, LED12: Input4,

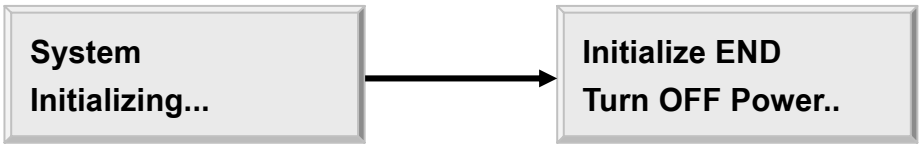
LED13: Input5, LED14: Input6, LED15: Input7, LED16: Input8

11. Basic Settings

Note !!!
You have to connect optional LCD display and Keypad to **STAR iTDC** for the following manual settings.

11.1 Initialization of **Star iTDC**

After the all installation and connections are completed, power up the **Star iTDC** then press the two Initialisation Switches simultaneously. The LCD will first display "**System Initialising…**" After the all Initialisation process is completed then the LCD will display "**Initialise END Turn OFF Power.**" Turn the power off then turn on again for **Star iTDC** running.



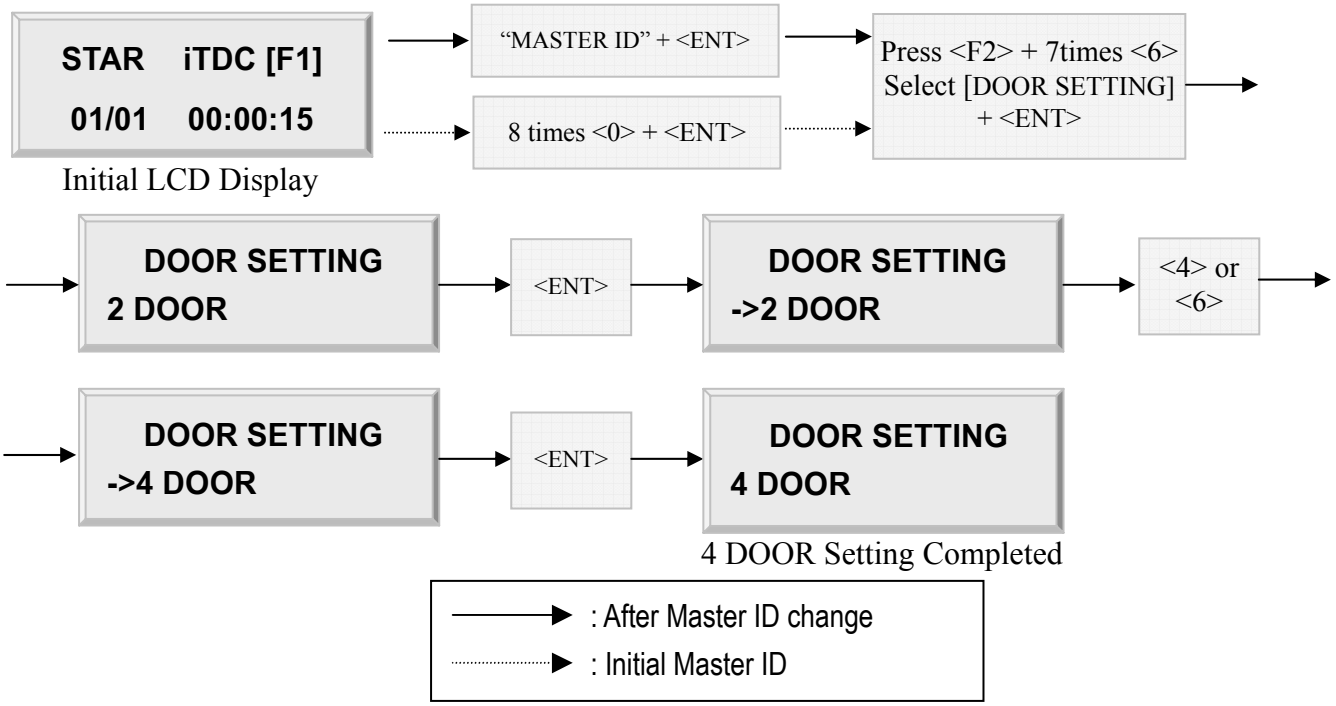
11.2 How To Enter The SETUP MENU

To set-up or to change the **STAR iTDC** settings, you have to enter the **SETUP MENU** first. To do so, press the **8 times <0>** key for **Master ID** (**Default setting "00000000"**) and **<ENT>** key from the optional Keypad then you can get into **SETUP MENU**. There are 4 main **SETUP MENU** and you first get into **[SETUP MENU F1]**. You can move to other **SETUP MENU** by pressing **<F1>** key for **[SETUP MENU F1]**, **<F2>** key for **[SETUP MENU F2]**, **<F3>** key for **[SETUP MENU F3]** and **<F4>** key for **[SETUP MENU F4]**. There are several **SUB MENU** in the main **SETUP MENU** and you can scroll up and down the **SUB MENU** by pressing **<4>** and **<6>** key in the main **SETUP MENU**. If you don't press any key for 60 seconds or if you press **<ESC>** key then STAR iTDC will exit the **SETUP MENU** then return to normal operation. You can also change the **Master ID** in the **[SETUP MENU F2]**.

The **Master ID** for **STAR iTDC-SR** is **10 times <0>** key (**Default setting "0000000000"**).

11.3 DOOR SETTING

First, you have to configure "How many doors you want to control by STAR iTDC" and this set-up is very important, as the STAR iTDC will automatically configure the Input sources and Output Relays upon to the number of doors to be controlled by STAR iTDC. Press **<F2>** key once then press **<6>** key or **<4>** key until the LCD shows **[DOOR SETTING]** in the **[SETUP MENU F2]** then press **<ENT>** key to change the DOOR SETTING. Please follow the steps below for DOOR SETTING and it shows the procedure for 4 DOOR setting. The **Master ID** for **STAR iTDC-SR** is **10 digits** number (**Default setting "0000000000"**).



2 Door Setting

Confirm the Reader locations as shown on the table below.

	Entry	Exit
Door1	Reader #1	Reader #2
Door2	Reader #3	Reader #4

3 Door Setting

Confirm the Reader and Exit Button locations as shown on the table below.

	Entry	Exit
Door1	Reader #1	Reader #2
Door2	Reader #3	EXIT Button
Door3	Reader #4	EXIT Button

4 Door Setting

Confirm the Reader and Exit Button locations as shown on the table below.

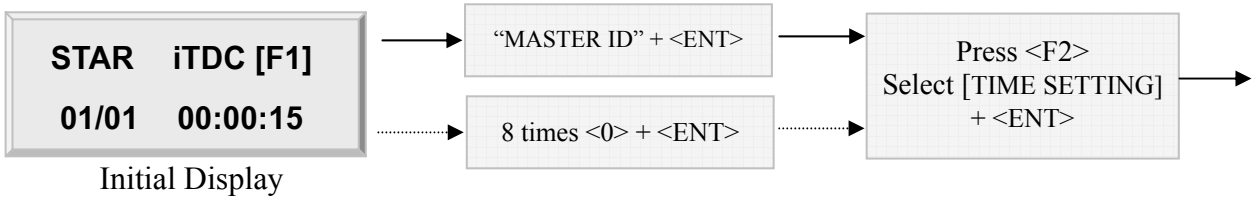
	Entry	Exit
Door1	Reader #1	EXIT Button
Door2	Reader #2	EXIT Button
Door3	Reader #3	EXIT Button
Door4	Reader #4	EXIT Button

Note! This must be set-up first before other set-up.

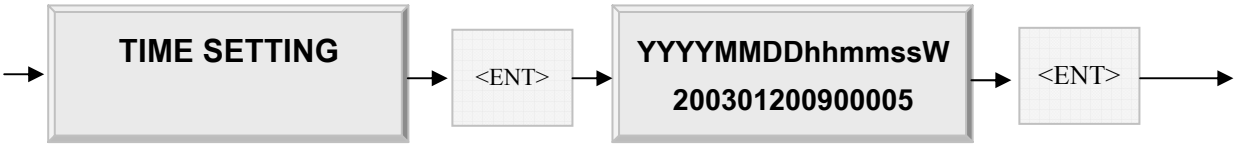
11.4 DATE and TIME SETTING

Select **[TIME SETTING]** in the **[SETUP MENU F2]** and enter the Year / Month / Date / hour / minute / second / Day (Total 15 digits) as shown below. LCD will display the new Date and Time after the time setting completed but year and day will not be displayed. STAR iTDC has 24 hours system and day codes are 1 for Sunday, 2 for Monday, 3 for Tuesday, 4 for Wednesday, 5 for Thursday, 6 for Friday and 7 for Saturday.

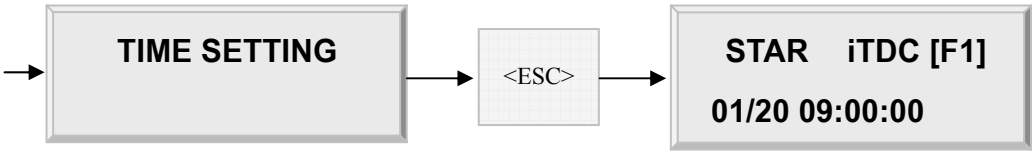
The **Master ID** for **STAR iTDC-SR** is **10 digits** number (**Default setting "0000000000"**).



Initial Display



"Year/Month/Day/Hour/Min./Sec./Day"



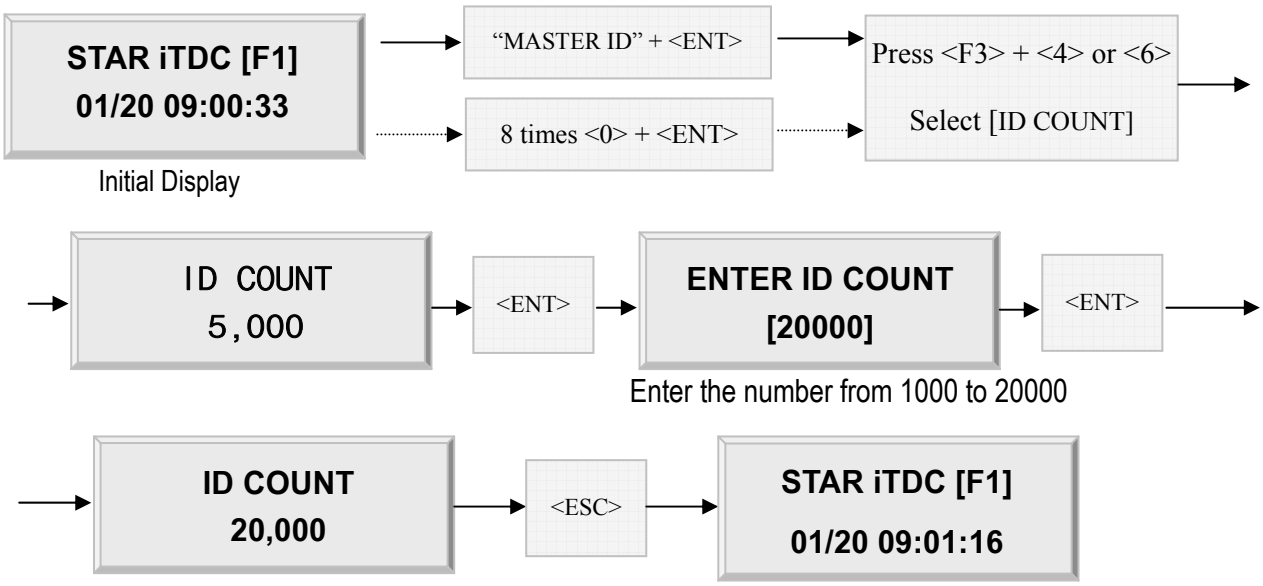
LCD displays after time setting

11.5 ID COUNT SETTING

Star iTDC can register maximum 20,000 User ID and you can select maximum User ID to be registered into the STAR iTDC from 1,000 up to 20,000 Users in 1,000 increments. This ID COUNT setting is to configure maximum User ID to be registered into STAR iTDC and if you set-up less ID COUNT then STAR iTDC will increase the EVENT Buffer size to maximum. The default ID COUNT is 5,000 Users and the default EVENT Buffer size is 27,500 can be stored when you operate **Star iTDC** off-line.

Select **[ID COUNT]** in the **[SETUP MENU F3]** then set-up the maximum User ID to be registered into STAR iTDC. Follow the steps to set-up ID COUNT.

The **Master ID** for **STAR iTDC-SR** is **10 digits** number (**Default setting "0000000000"**).



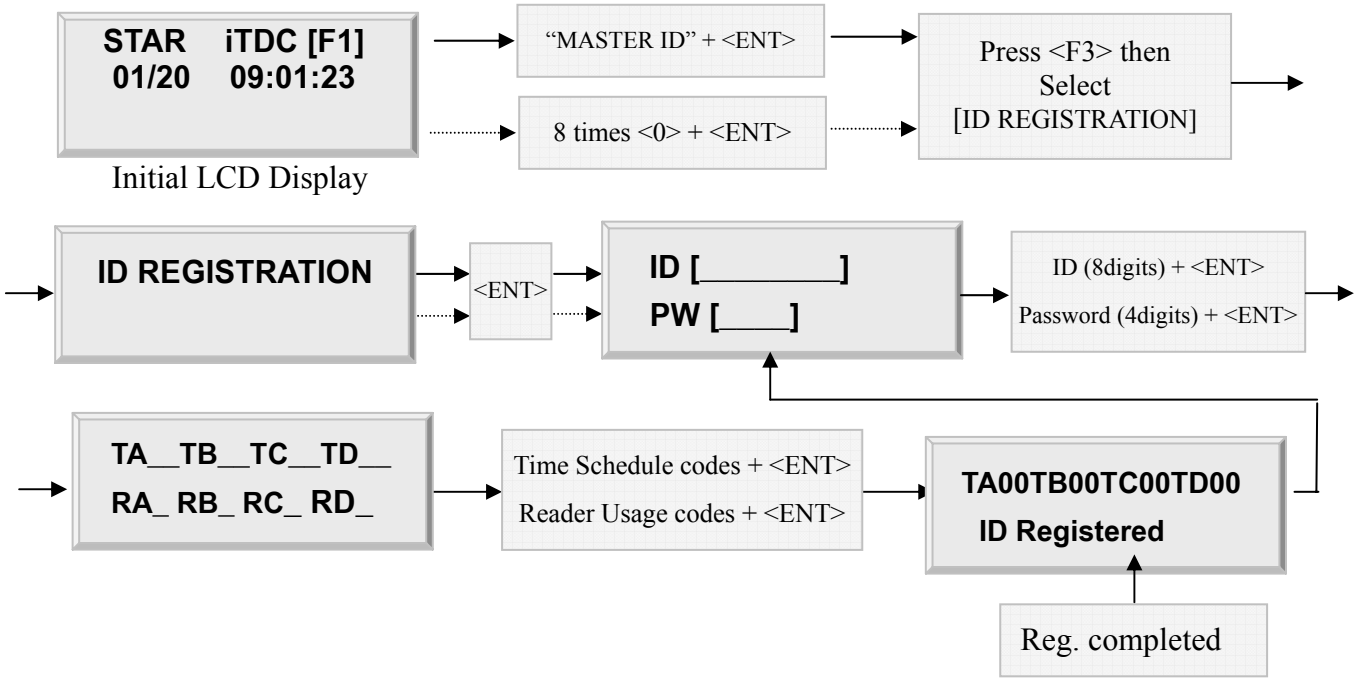
☞ You will see this error message when you press **<ENT>** key in the **[ID COUNT]** menu and it tells you that some events are still existing in the EVENT Buffer and you may lost the data when you change the ID COUNT. You may try this setting again after uploading the events to the host PC or deleting them, using the **[SETUP MENU F2]** -> **[EVENT CLEAR]**.

☞ You will see this error message when you try to change ID COUNT less than the total registered User ID. In this case you have to delete some User ID or clear the User ID, using the **[SETUP MENU F2]** -> **[ID CLEAR]** first then try again from the beginning.

11.6 ID REGISTRATION

You can register the User ID into the STAR iTDC. Select **[SETUP MENU F3]** -> **[ID REGISTRATION]** then follow the steps below.

The **Master ID** for **Star iTDC-SR** is **10 digits** number (**Default setting "0000000000"**).



1. ID [_____]: ID number consists of 3-digits Facility code from 000 to 255 and 5-digits ID number from 00000 to 65535 so that the 8-digits ID number cannot exceed 25565535. If you don't know the ID number of the proximity cards then select **[SETUP MENU F4]** -> **[READER TEST]** then present the card to the reader to display the ID number. Enter 8-digits ID number then press <ENT> key in the ID [_____] field. (ID number of STAR iTDC-SR has 10-digits decimal numbers.)

2. PW [____]: PW is the password which can be used to access the doors where you install a Proximity and Keypad Reader and set-up the RF + Password operating mode. But regardless of the operating mode, it is necessary to enter a default password (0000) in the PW [____] field when you register ID.

3. TA__TB__TC__TD__: TA, TB, TC and TD are Time Schedule code (00-15) for the Readers, TA is the Time Schedule for the Reader #1, TB is for Reader #2, TC is for Reader #3 and TD is for Reader #4. When you present the card to Reader #1 then the cardholder is only allowed the access of the door during the Time Schedule code entered to TA__ and the other Readers are the same manner. To control the accessible Time Schedule for each cardholder, you must set-up the Time schedules first and enter the Time Schedule code here. If you want to access the door anytime for the cardholder then enter default Time Schedule code '00' for the value.

4. RA__RB__RC__RD__: RA, RB, RC and RD are Reader Usage codes for the cardholder. If you put '1' for RA then Reader #1 is accessible and if you put '0' for RA then the cardholder can not access through the Reader #1 and STAR iTDC generates an error message "Access Door Error" and displays on the LCD. To get access through all 4 Readers, you have to input '1' value for RA, RB, RC and RD.

11.7 OUTPUT SETTING

You can program the output behaviour by using the application software. Please refer to APPENDIX for factory settings.

12. Operation

12.1 Normal Operation

Power on

When the power is applied to **Star iTDC**, the LED7 is turned on.

Registered card reading

When a registered card (or PIN) is read, the Door (Relay #1, Relay #3) will open for 3 seconds (Default) with the LED on. (LED8, LED10)

Exit Button

To request for exit from the inside, an Exit Button (or an Exit Reader) can be used. The Door (Relay #1, Relay #3) will open for 3 seconds with the LED on. (LED8, LED10)

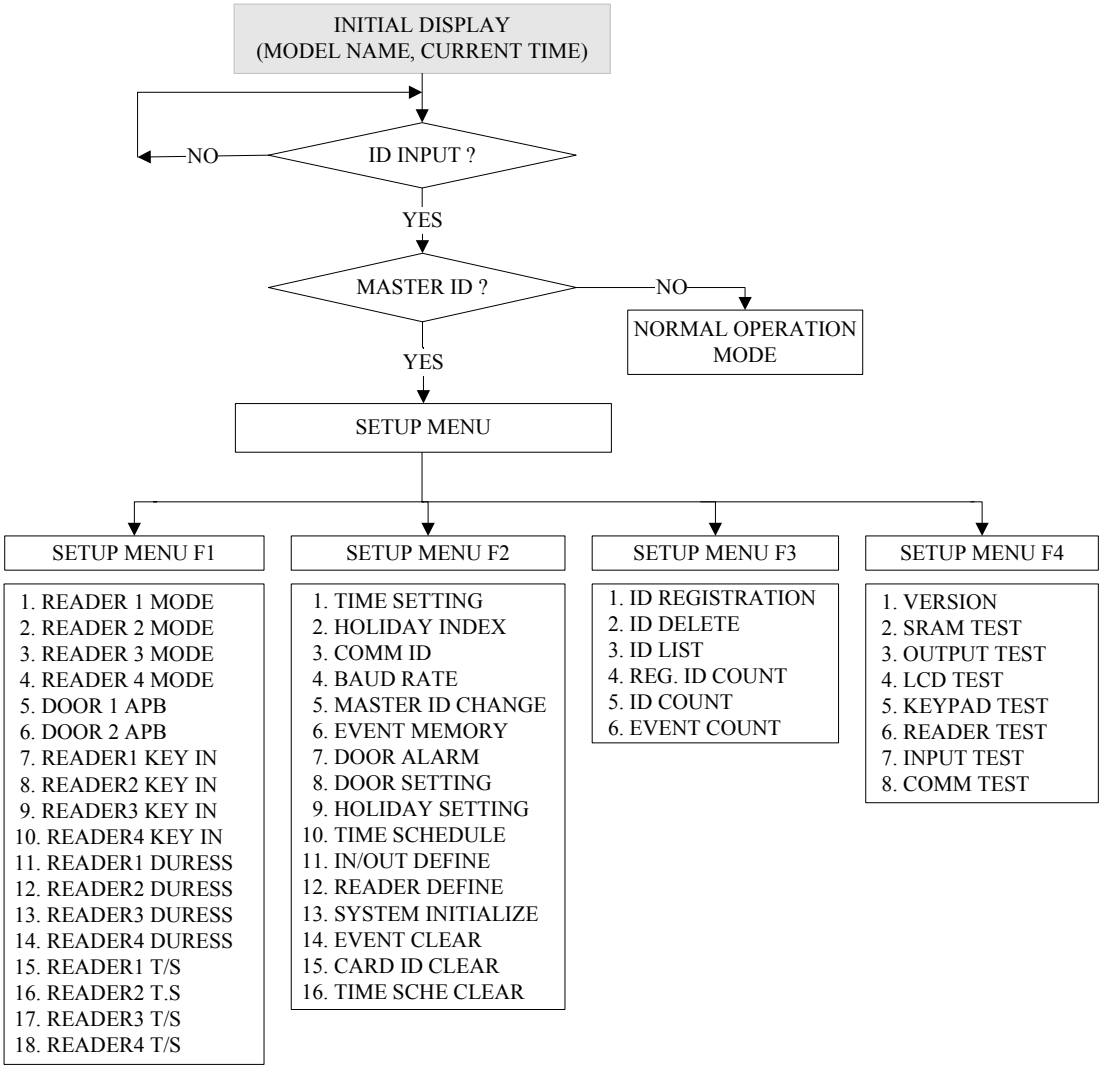
Alarms

When an unregistered card is read, the access is denied and the alarm (Relay #2, Relay #4) will be activated for 3 seconds with the LED on (LED9, LED11) along with a buzzer sound.

12.2 DEFAULT SETTING

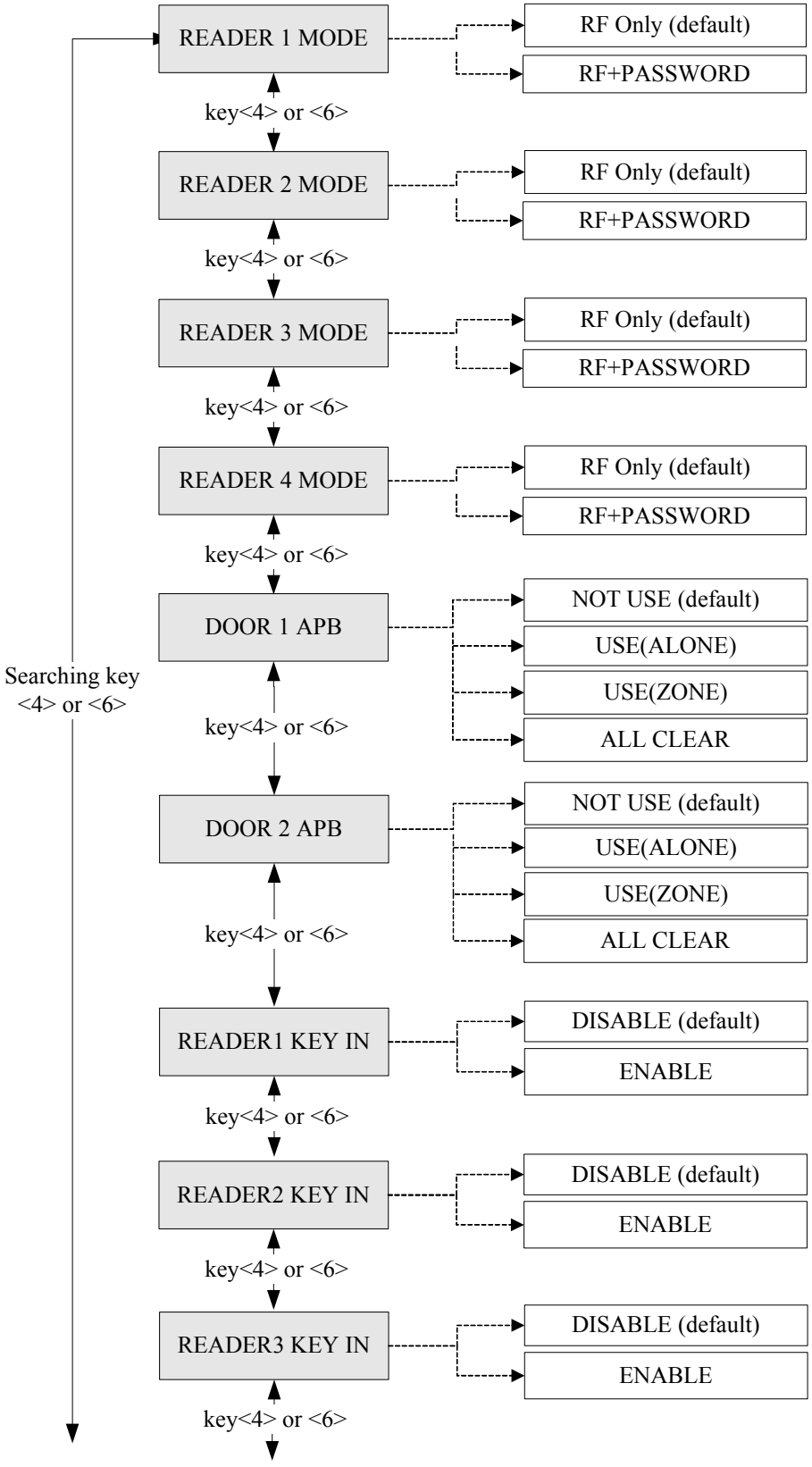
When you operate the **Star iTDC** first time or you initialise the Star iTDC, the controller will set-up all values defaults (factory settings). You can change the settings for desired application. Please refer to the APPENDIX for the default setting values.

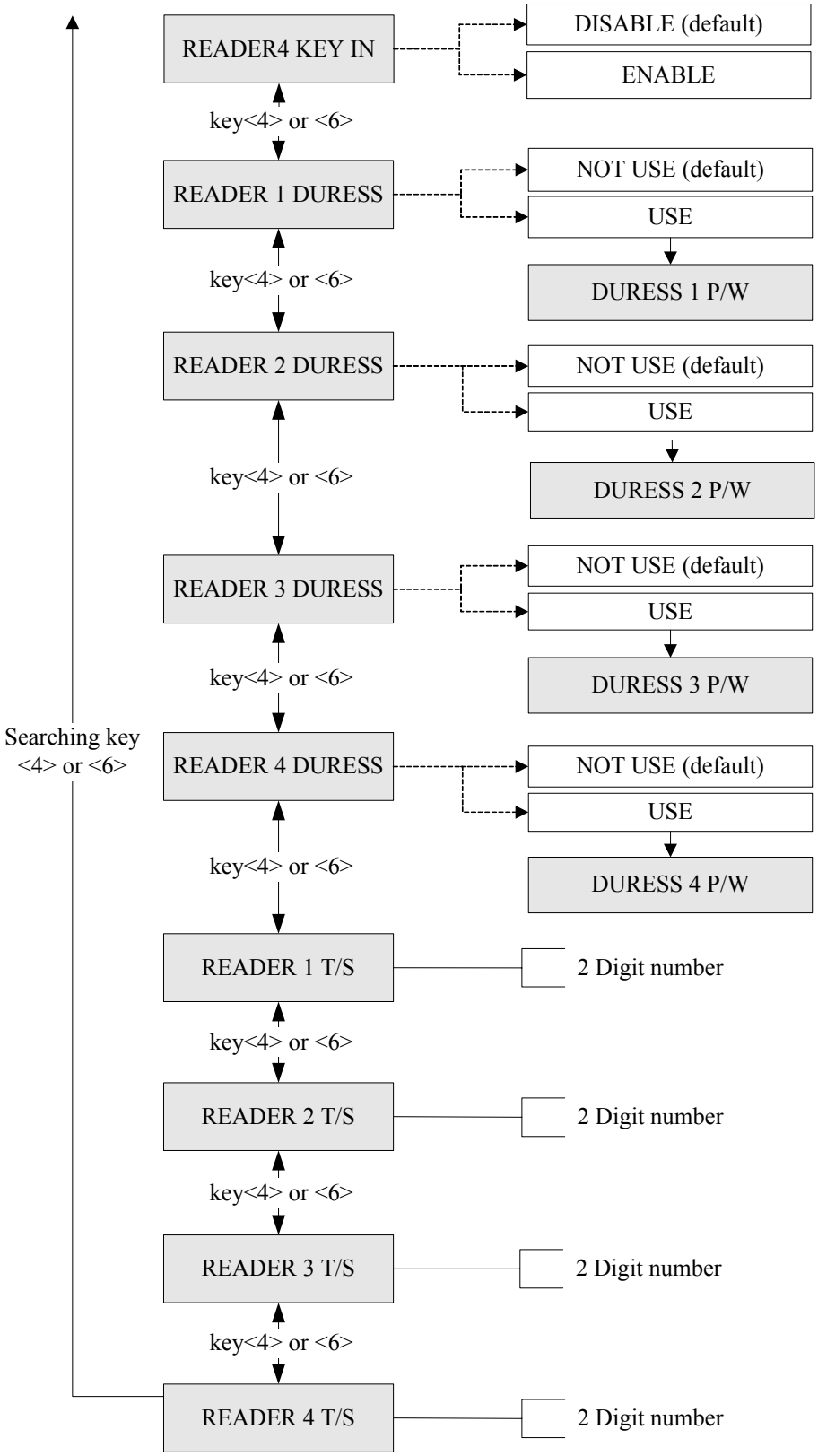
13. Setting Changes



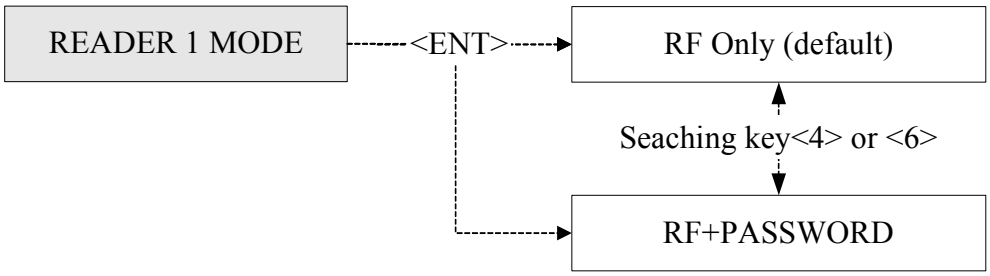
☞. To set-up or to change the STAR iTDC settings, you have to enter the **SETUP MENU** first. To do so, press **8 times <0>** key for **Master ID** (**Default setting "00000000"**) and **<ENT>** key from the optional Keypad then you can get into **SETUP MENU**. There are 4 main **SETUP MENU** and you first get into **[SETUP MENU F1]**. You can move to other **SETUP MENU** by pressing **<F1>** key for **[SETUP MENU F1]**, **<F2>** key for **[SETUP MENU F2]**, **<F3>** key for **[SETUP MENU F3]** and **<F4>** key for **[SETUP MENU F4]**. There are several **SUB MENU** in the main **SETUP MENU** and you can scroll up and down the **SUB MENU** by pressing **<4>** and **<6>** key in the main **SETUP MENU**. If you don't press any key for 20 seconds or if you press **<ESC>** key then STAR iTDC will exit the **SETUP MENU** then return to normal operation. The **Master ID** for **STAR iTDC-SR** is **10 times <0>** key (**Default setting "0000000000"**).

13.1 SETUP MENU F1




READER4 KEY IN
DISABLE (default)
ENABLE
key<4> or <6>
READER 1 DURESS
NOT USE (default)
USE
DURESS 1 P/W
key<4> or <6>
READER 2 DURESS
NOT USE (default)
USE
DURESS 2 P/W
key<4> or <6>
READER 3 DURESS
NOT USE (default)
USE
DURESS 3 P/W
key<4> or <6>
Searching key
<4> or <6>
READER 4 DURESS
NOT USE (default)
USE
DURESS 4 P/W
key<4> or <6>
READER 1 T/S
2 Digit number
key<4> or <6>
READER 2 T/S
2 Digit number
key<4> or <6>
READER 3 T/S
2 Digit number
key<4> or <6>
READER 4 T/S
2 Digit number

13.1.1 READER MODE SETTING



READER1 MODE
RF ONLY

☞. It shows READER1 MODE is set to RF ONLY operating mode. If you want to change the mode to RF+PASSWORD operating mode, then press <ENT> key.

READER1 MODE
->RF ONLY

READER1 MODE
->RF+PASSWORD

☞. Now you can change the mode by pressing <4> or <6> key to toggle the mode. If you want to set-up the mode displayed then press <ENT> key to accept this mode.

Note:

RF ONLY: The door is accessible with the proximity card alone.

RF+PASSWORD: The door is accessible with the proximity card and Password.

*** READER2, READER3 and READER4 MODE set-up is the same as above.**

13.1.2 ANTI-PASS-BACK MODE SETTING

DOOR 1 APB
NOT USE

☞. It shows Door1 anti-pass-back operation is not used. Press <ENT> key. (**It only applies when the Door has Exit Reader**)

- For Door1 (2), you must have Reader #1(#2) for entry and Reader #3(#4) for exit.

DOOR 1 APB
->USE(ALONE)

DOOR 1 APB
->USE(ZONE)

DOOR 1 APB
->All Clear

☞. Press <4> or <6> key for searching the APB mode.
Press <ENT> key to select the mode.
NOT USE: Anti-pass-back mode is not applied.
USE (ALONE): Door1 (2) Anti-pass-back mode is separately applied.
USE (ZONE): Door1 (2) Anti-pass-back mode is applied together.
Note: If you select USE (ZONE) then the APB flag will be affected to Door1 and Door2. DOOR2 APB mode is set automatically.
Example: When you select USE (ALONE) then Door2 entry is possible after you got in through Door1.
When you select USE (ZONE) then Door2 entry is not possible after you got in through Door1. (APB error)

☞. If you select All Clear then iTDC will clear all APB flags and all users are not allowed Exit first.

*** DOOR2 APB mode set-up is the same as above.**

13.1.3 KEYPAD INPUT SETTING

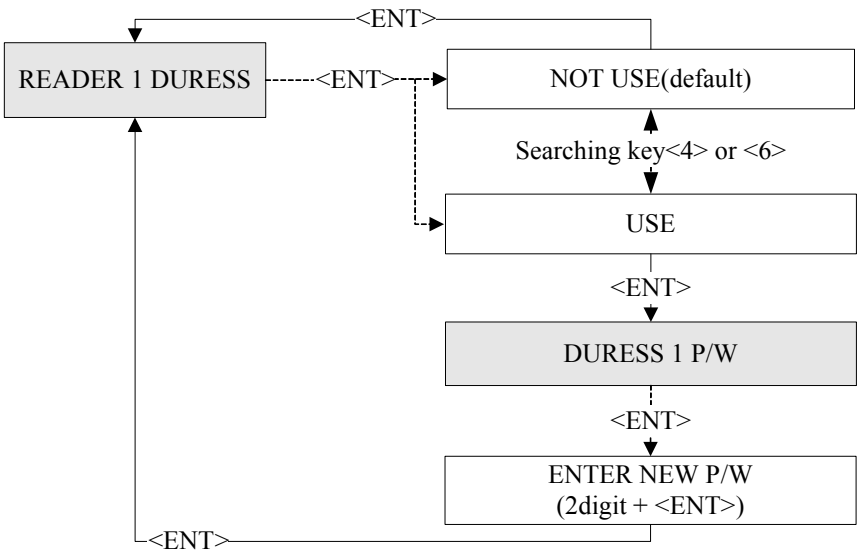
READER1 KEY IN DISABLE

READER1 KEY IN ->ENABLE

☞. This function is to set DISABLE/ENABLE the keypad inputs from the Proximity and Keypad Readers. The default setting is DISABLE the keypad inputs. If you install Keypad Reader (8bit burst format) and set this mode ENABLE, you can access the Door by pressing 8digit User ID from the keypads. Press <ENT> key and press <4> or <6> key to select ->ENABLE then press <ENT> key to set-up this function.

*** READER2, READER3 and READER4 KEY IN set-up is the same as above.**

13.1.4 DURESS MODE SETTING



READER1 DURESS NOT USE

READER1 DURESS -> USE

DURESS 1 P/W 00

DURESS 1 P/W 00

☞. You can select whether the DURESS mode is used or not used for READER1. To use this function, you need Keypad Reader. Default setting is NOT USE. If you want to set-up Duress mode then press <ENT> key and select ->USE by pressing <4> or <6> key then press <ENT> key. LCD will display default Duress Password '00'. Press <ENT> key again to enter 2 digit Duress Password then press <ENT> key to finish setting.

Note!!

In case of Duress, enter the 2 digit Duress Password and <ENT> key then present the card. Door will be opened as normal but the Duress alarm will be generated and reported to the host PC.

*** READER2, READER3 and READER4 DURESS set-up is the same.**

13.1.5 READER TIME SCHEDULE SETTING

READER1 T/S
00

READER1 T/S
00

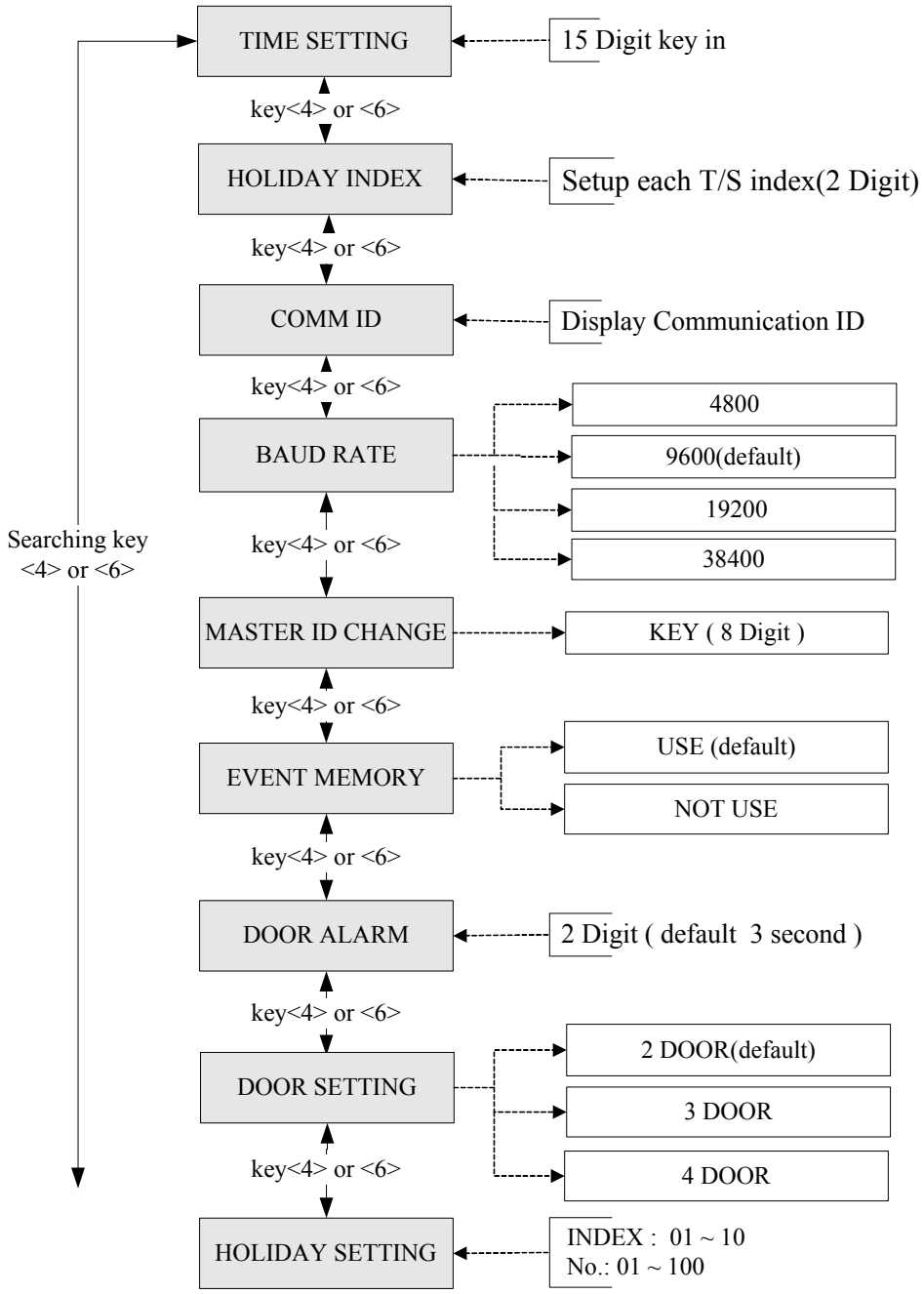
☞. If you set-up RF+PASSWORD operating mode for Reader #1 (Refer to READER1 MODE SETTING), you can apply Time Schedule for Reader #1. During the time period of Time Code in the T/S, Reader #1 will operate RF ONLY mode. And the rest of time period, Reader #1 will operate RF+PASSWORD mode.

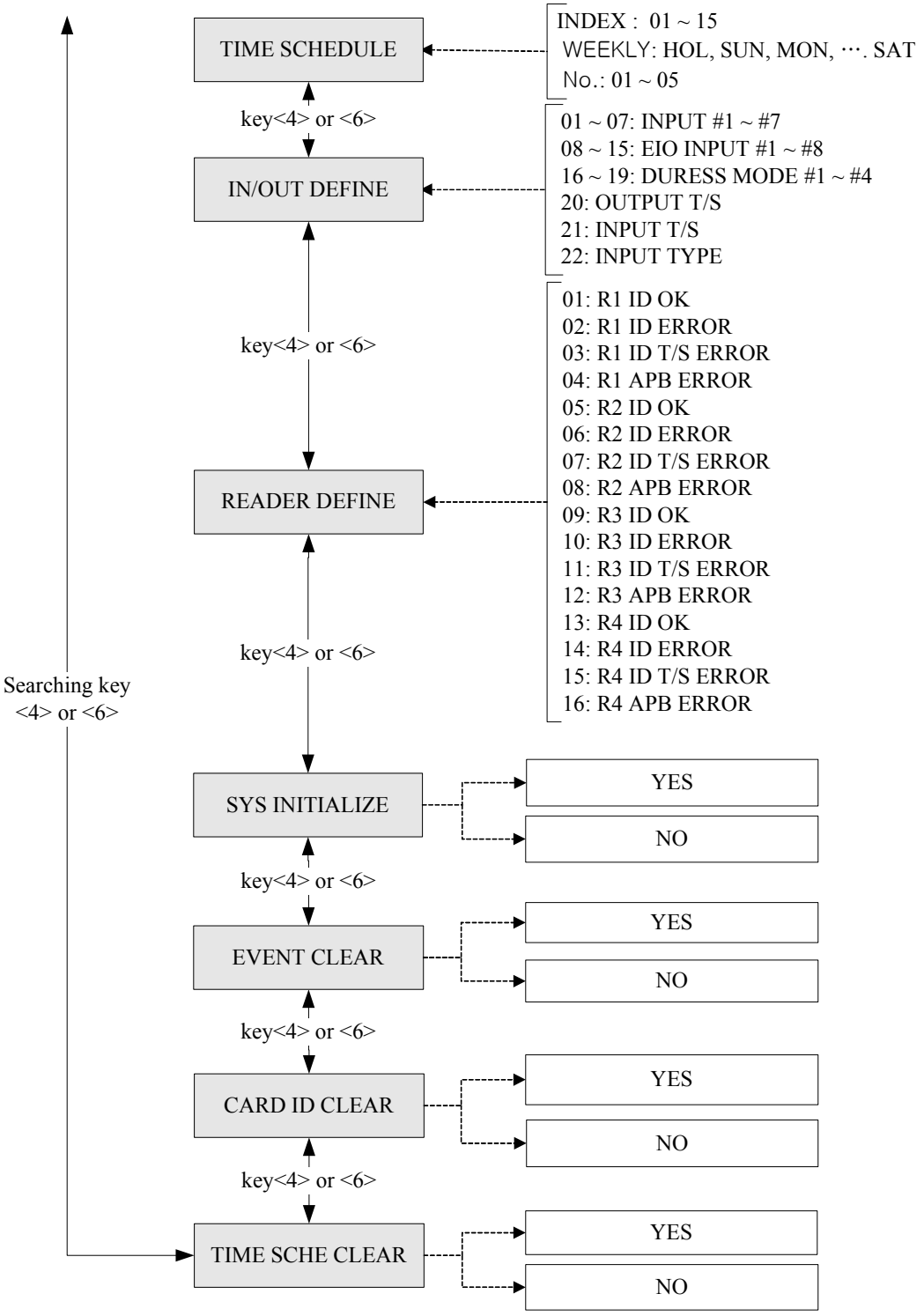
To apply this function, you have to set-up Time Schedules (T/S) and Holiday Schedules (H/S) from the iTDC Application Software and download T/S with H/S index to the iTDC. Please read iTDC Software Manual for detail.

Select READER1 T/S then press <ENT> key. Enter 2 digit T/S index ('00' ~ '15') then press <ENT> key to apply it.

*** READER2, READER3 and READER4 T/S set-up is the same as above.**

13.2 SETUP MENU F2




TIME SCHEDULE
INDEX : 01 ~ 15
WEEKLY: HOL, SUN, MON, ···. SAT
No.: 01 ~ 05
key<4> or <6>
IN/OUT DEFINE
01 ~ 07: INPUT #1 ~ #7
08 ~ 15: EIO INPUT #1 ~ #8
16 ~ 19: DURESS MODE #1 ~ #4
20: OUTPUT T/S
21: INPUT T/S
22: INPUT TYPE
key<4> or <6>
READER DEFINE
01: R1 ID OK
02: R1 ID ERROR
03: R1 ID T/S ERROR
04: R1 APB ERROR
05: R2 ID OK
06: R2 ID ERROR
07: R2 ID T/S ERROR
08: R2 APB ERROR
09: R3 ID OK
10: R3 ID ERROR
11: R3 ID T/S ERROR
12: R3 APB ERROR
13: R4 ID OK
14: R4 ID ERROR
15: R4 ID T/S ERROR
16: R4 APB ERROR
key<4> or <6>
Searching key
<4> or <6>
SYS INITIALIZE
YES
NO
key<4> or <6>
EVENT CLEAR
YES
NO
key<4> or <6>
CARD ID CLEAR
YES
NO
key<4> or <6>
TIME SCHE CLEAR
YES
NO

13.2.1 TIME SETTING

TIME SETTING

YYYYMMDDhhmmssW _ _ _ _ _ _ _ _ _ _ _ _ _ _

☞. Press <ENT> key and enter 15 digit Date/Time codes then <ENT> key to finish setting.
YYYY: Year, MM: Month, DD: Date
hh: Hours (24 hours system), mm: Minutes, ss: Seconds
W: Sun=1, Mon=2, Tue=3, Wed=4, Thu=5, Fri=6, Sat=7
Example: 200302101330152 => Feb.10,2003 13:30:15 Mon

13.2.2 HOLIDAY INDEX SETTING

HOLIDAY INDEX

T/S_INDEX 01 HOLIDAY CODE 00

☞. Holiday Index is to link the Holiday Schedule (H/S) to Time Schedule. You can set-up one of holiday index (01~10) to one of T/S index (01~15) so that the Holiday Time Code in the T/S can be applied for the Holidays in the H/S. Default HOLIDAY CODE is '00' which means no holidays are applied to T/S.
Select HOLIDAY INDEX menu and press <ENT> then select desired T/S_INDEX (01~15) by pressing <4> or <6> key then press <ENT> key to input 2 digit HOLIDAY CODE and <ENT>.

13.2.3 COMMUNICATION ID (ADDRESS) DISPLAY

COMM ID 000

☞. This menu shows the current communication ID of the iTDC. If multiple iTDC units are connected to one host PC, each unit must be configured to different communication ID.

Note:
You can change COMM ID by DIP switch setting of the iTDC.

13.2.4 BAUD RATE SETTING

BAUD RATE 9600

BAUD RATE ->9600

BAUD RATE ->19200

☞. iTDC supports 4800, 9600, 19200 and 38400bps of baud rate and default setting are 9600bps. Wrong baud rate setting will cause communication errors and you have to set same baud rate to iTDC and host PC. If you have communication problem, please check followings;
- Check COMM ID of iTDC and host PC
- Check BAUD RATE of iTDC and host PC
- Check communication port and cable
- Check COM port set-up of host PC
  Parity: None, Data Bit: 8 bit, Stop Bit: 1 bit

To change the baud rate, press <ENT> key and select desired baud rate by pressing <4> or <6> key then press <ENT> key.

13.2.5 MASTER ID CHANGE

MASTER ID CHANGE	☞. Press <ENT> key to change the current Master ID ("00000000"). You should use the new Master ID to access the SETUP MENU after you changed the Master ID.
MASTER ID CHANGE **[_____]**	☞. You should use 8 digits number for Master ID. Press <ENT> key and enter the new 8 digits Master ID and <ENT> key.
Master Card **Registered**	☞. Master ID is now changed and stored in the memory. LCD shows new Master ID is registered successfully.

The Master ID for STAR iTDC -SR is 10 digits number (Default setting "0000000000").

13.2.6 EVENT MEMORY SETTING

EVENT MEMORY **USE**	☞. You can select whether you use event memory or not. When you select USE and in case of event memory full then iTDC generates an error message and keeps all events stored in the memory. When you select NOT USE then iTDC will not generate an error and new event overwrite into the event buffers. If you use iTDC for standalone (just for door access) then select NOT USE.
EVENT MEMORY **->NOT USE**	

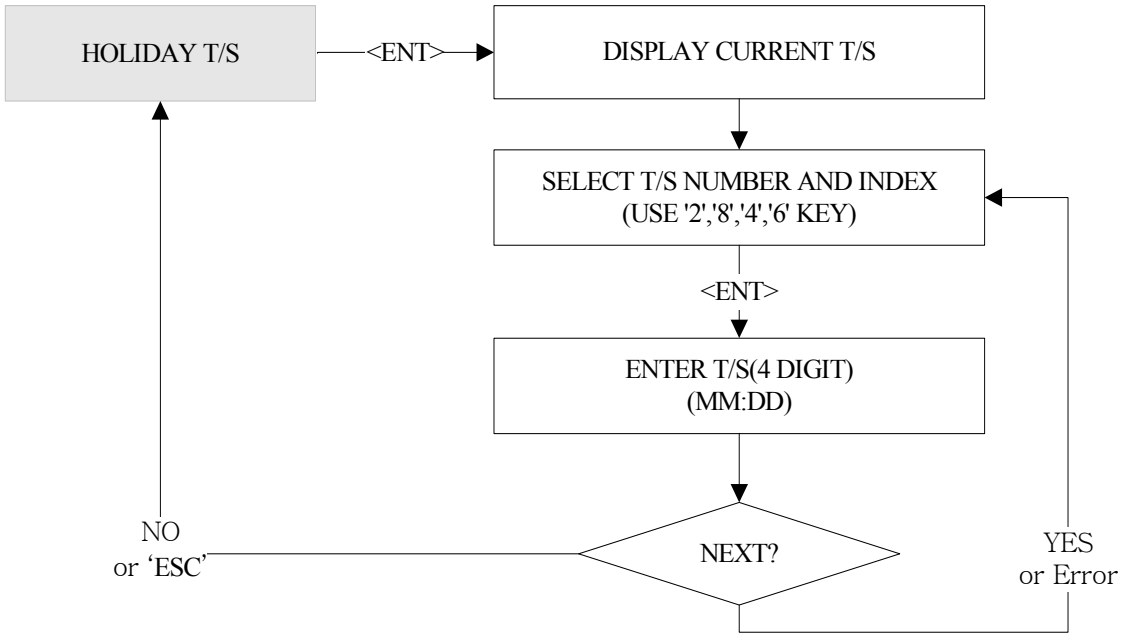
13.2.7 DOOR OPEN ALARM SETTING

DOOR ALARM **03**	☞. When the door is still opened after the door unlock time, you may set this alarm function. To use this function, you have to install Door Contact Sensor on the door and set-up the output of Door Contact Sensor from the iTDC Application Software. '03' default 00: Alarm if the door is opened after the door unlock time 01~98: Alarm if the door is opened after the set time (01~98s) 99: No alarm
DOOR ALARM **99**	

13.2.8 DOOR SETTING

DOOR SETTING **2 DOOR**	☞. Set-up how many doors to be controlled by the iTDC. **2 DOOR:** Reader#1-Door1 Entry, Reader#2-Door1 Exit Reader#3-Door2 Entry, Reader#4-Door2 Exit **3 DOOR:** Reader #1-Door1 Entry, Reader #2-Door1 Exit Reader#3-Door2 Entry, Reader#4-Door3 Entry
DOOR SETTING **->2 DOOR**	**4 DOOR:** Reader#1, #2, #3, #4-Door1, 2,3,4 Entry **Note! This must be set-up first before other set-up.** **Please refer to section 8.3 DOOR SETTING.**

13.2.9 REGISTERING AND CHANGING HOLIDAY TIME SCHEDULE

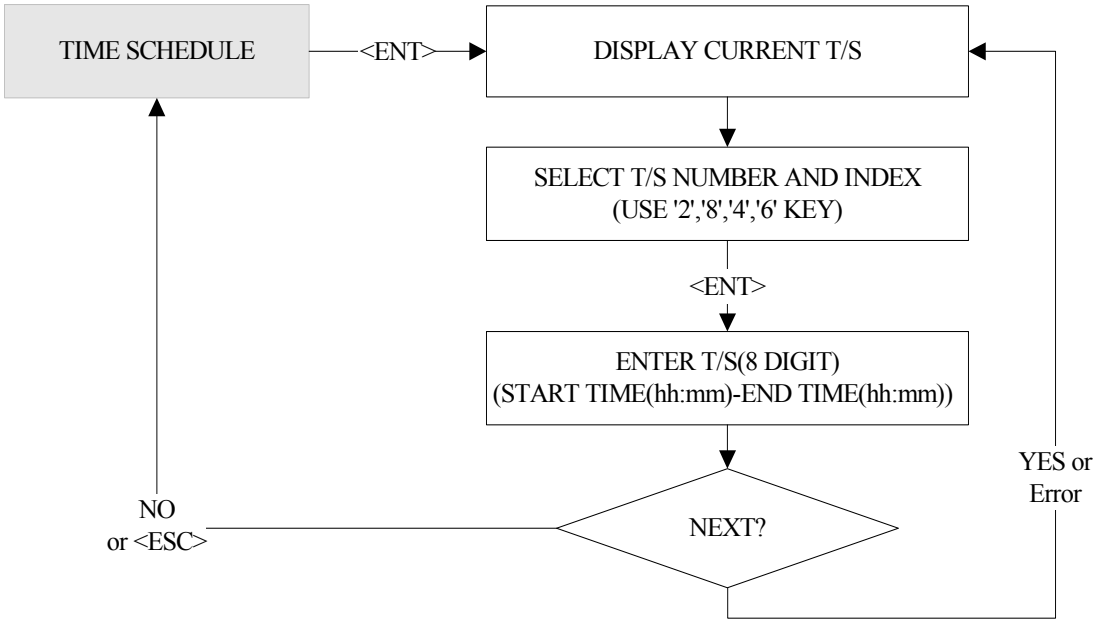


HOLIDAY T/S	☞. You can register up to 100 specified "holidays," per year for each schedule setting. There can be 10 other registration sets created, meaning holidays can be set for up to 10 years. Press <ENT> to register the days.

HOL T/S: 01 #001 00:00	☞. With the <2> key and <8> key, select the Date Registration Set Number (1~10), and with the <4> key and <6> key, select the index for the days (1~100). Press <ENT> key and the cursor will blink. Enter the date, in form of the Month (1~12). The LCD will indicate the defined date. Now a day has been registered. For further registration, repeat the process.

☞. 1) Holiday Time schedule (Date registration set) number: 01 ~ 10(10 years)
2) Index for the days: 01 ~ 100(100 days)

13.2.10 Registering and Changing TIME SCHEDULE



TIME SCHEDULE

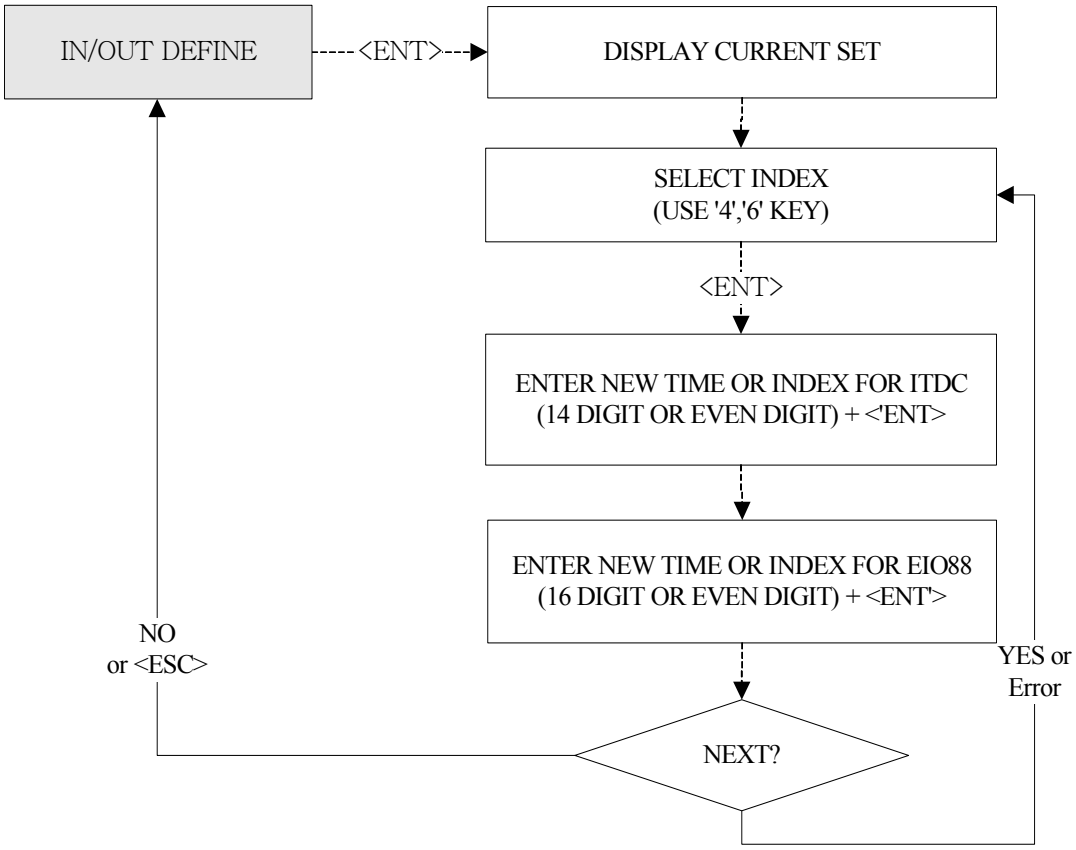
T/S: 01 HOL #1
00:00 - 00:00

☞. You may program time schedules to grant and restrict access for each user. There can be up to 15 different schedules. A minimum of one schedule must be defined.
If only one schedule is programmed the most common setting allows access for all users 24 hours / day. A time schedule can be programmed for each day of the week and holidays, and five shifts can be defined for each day. To set time schedules, press <ENT> key from this menu.
If you want to set time schedules, press <ENT> key when this figure is displayed.

☞. Press <2> key or <8> key to adjust the Time Schedule (T/S) number (1-15) and the day of the week (Mon-Sun and 'HOL'). Define which shift of the day (1-5), using the <4> key and <6> key. 'HOL' refers to specific holidays you will register. Press <ENT> key, and the cursor will blink, then enter the beginning time of the period, in the form of hour (2-digit): minute (2-digit) and the ending time in the same form. Then the lower line will indicate the defined period. For more schedules, repeat the process. To end time scheduling, press <ESC> key.

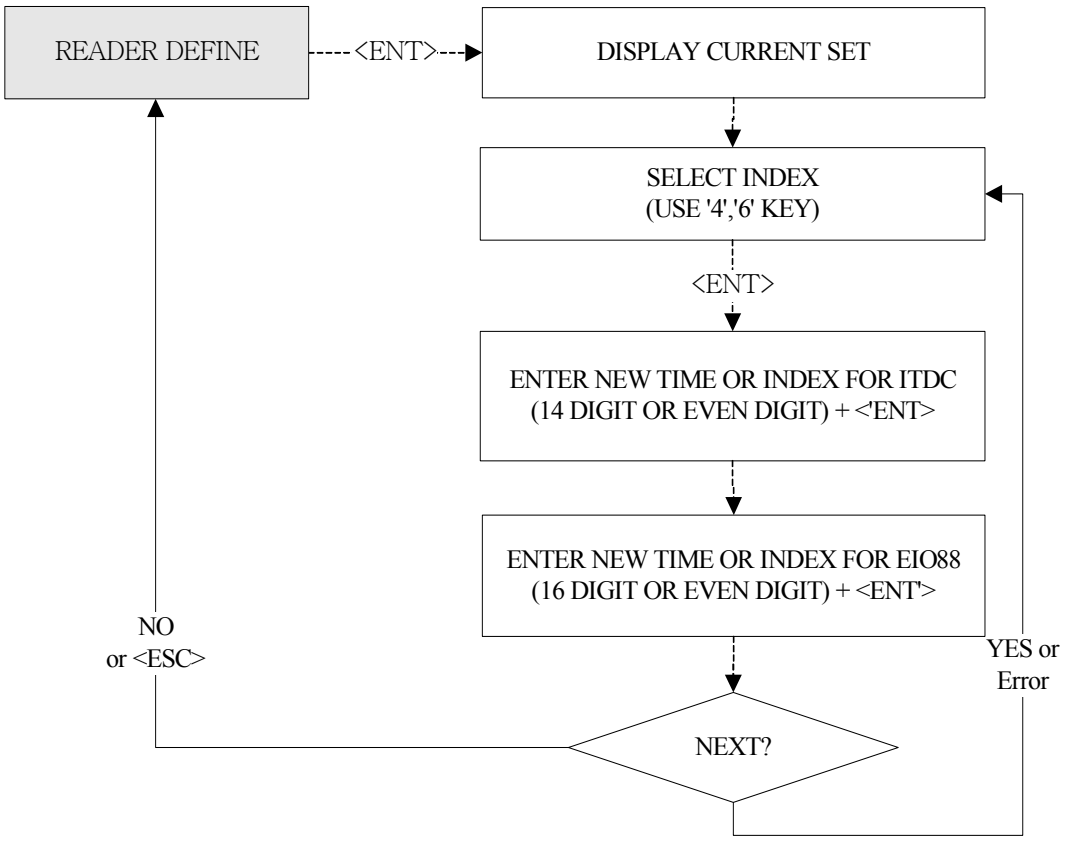
☞. **Possible values for time scheduling**
1) Time schedule number: 01 ~ 15 (Needed when IDs are registered)
2) A day of the week: MON, TUE, WED, THU, FRI, SAT, SUN, HOL
3) Index: 1 ~ 5(referred to the five periods of time of a day)

13.2.11 DEFINING OUTPUTS IN COMPLIANCE WITH INPUTS



IN/OUT DEFINE	☞. You can program or deactivate each output to be generated and choose how long (in seconds) they will last. There are default values as seen in the APENDIX (**A. THE RELATION BETWEEN INPUT AND OUTPUT (DEFAULT)**
1.INPUT #1	☞. Select input sources by changing Index numbers with the keys <4> or <6>.
iTDC: 03 00 00 **00 00 00 00**	☞. Press <ENT> key and you will see a cursor blinking at the first digit from the left of the seven couples of digits (Output of iTDC). Enter the 14 digit (seven couples) key.
EIO: 00 00 00 **00 00 00 00 00**	☞. Press <ENT> key and you will see a cursor blinking at the first digit from the left of the eight couples of digits (Output of EIO88). To set time for eight couples, press <ENT> key. For more inputs, repeat the process. To end input setting, press <ESC> key.

13.2.12 DEFINING OUTPUTS IN COMPLIANCE WITH READER



READER/OUT DEFINE	☞. You can program or deactivate each output to be generated and choose how long (in seconds) they will last. There are default values as seen in the APENDIX (**A. THE RELATION BETWEEN INPUT AND OUTPUT (DEFAULT)**
1.R1 ID OK	☞. Select input sources by changing Index numbers with the keys <4> or <6>.
iTDC: 03 00 00 **00 00 00 00**	☞. Press <ENT> key and you will see a cursor blinking at the first digit from the left of the seven couples of digits(Output of iTDC). Enter the 14 digit (seven couples) key.
EIO: 00 00 00 **00 00 00 00 00**	☞. Press <ENT> key and you will see a cursor blinking at the first digit from the left of the eight couples of digits(Output of EIO88). To set time for eight couples, press <ENT> key. For more inputs, repeat the process. To end input setting, press <ESC> key.

13.2.13 SYSTEM INITIALIZE

SYS INITIALIZE	☞. This operation will initialise the iTDC. Press <ENT> key, if an initialisation is needed. (First time installation or resetting in the event of a malfunction). **CAUTION: Initialising will erase all stored data in the memory.**
SYS INITIALIZE **1 – Yes, 0 - No**	☞. Press <1> key to initialise or <0> key to cancel the operation.
System **Initializing..**	☞. This message appears while the system is being initialised. After the initialisation, iTDC will return to the set-up menu.

13.2.14 EVENT CLEAR

EVENT CLEAR	☞. When the event memory is full or when you want to change ID COUNT, you can clear the event memory in this menu. Press <ENT> key then press <1> key to clear event memory or <0> key to cancel the operation. **CAUTION: Before you clear the events, make sure that the stored events is not necessary to upload to the host PC otherwise you may lose important data.**
EVENT CLEAR **1 - Yes, 0 - No**	

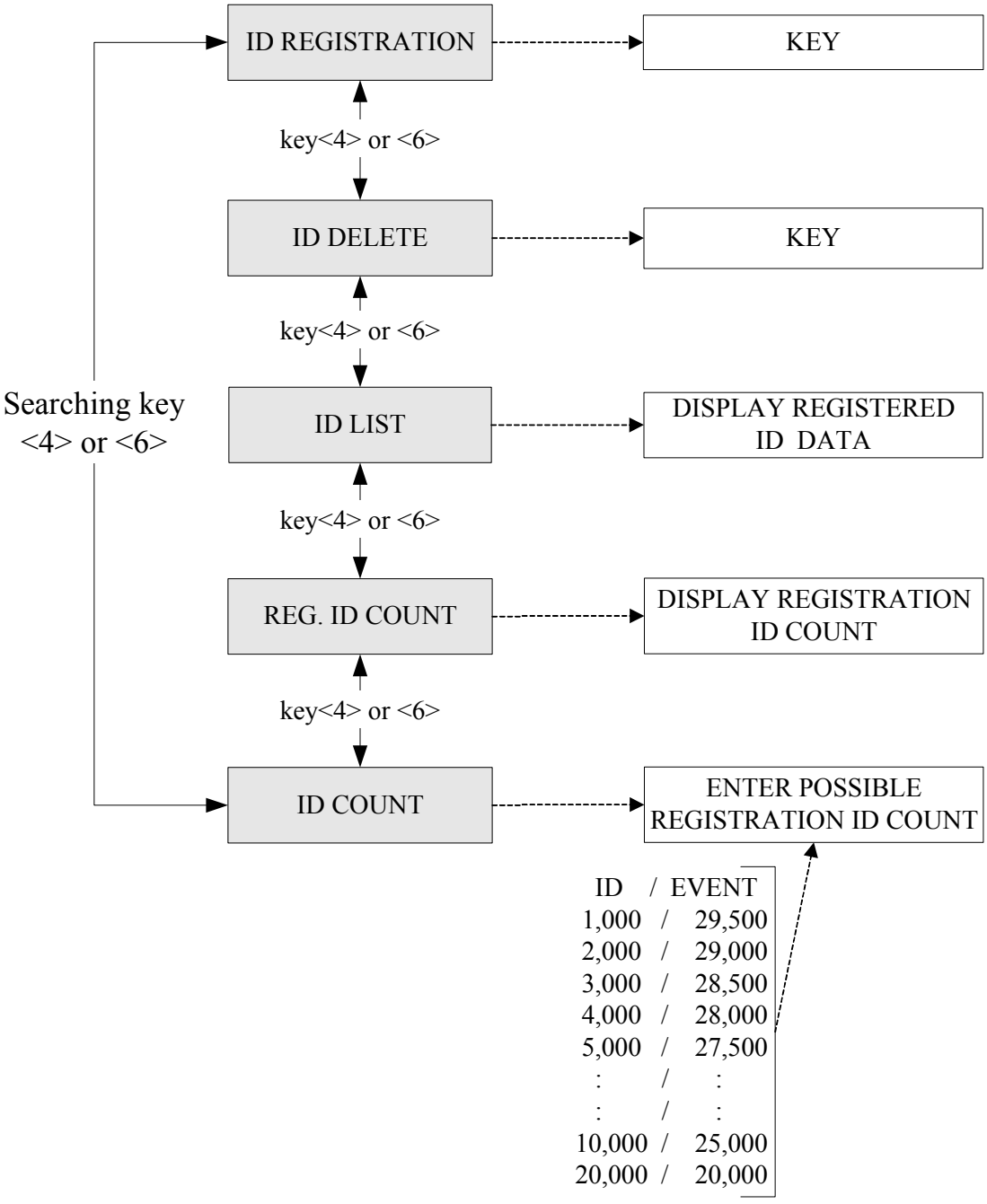
13.2.15 CARD ID CLEAR

CARD ID CLEAR	☞. When you want to delete all User ID (Card ID), you can clear all User ID from the memory. Press <ENT> key then press <1> key to clear all User ID or <0> key to cancel the operation. **CAUTION: Before you clear all User ID, make sure that the registered User ID is no longer used otherwise you may lose all registered User ID.**
CARD ID CLEAR **1 - Yes, 0 - No**	

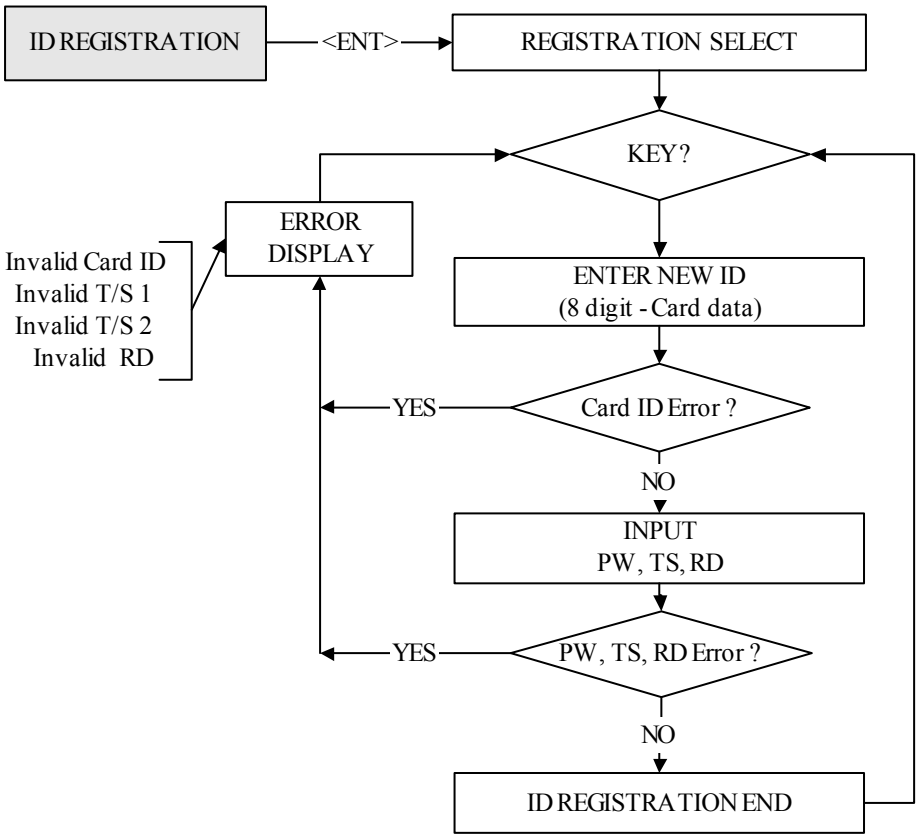
13.2.16 TIME SCHEDULE CLEAR

TIME SCHE CLEAR	☞. When you want to delete all Time Schedule (01~15), you can clear all T/S from the memory. Press <ENT> key then press <1> key to clear all T/S or <0> key to cancel the operation. **CAUTION: Before you clear all T/S, make sure that the stored T/S is no longer used otherwise you may lose all stored T/S in the memory.**
TIME SCHE CLEAR **1 - Yes, 0 - No**	

13.3 SETUP MENU F3



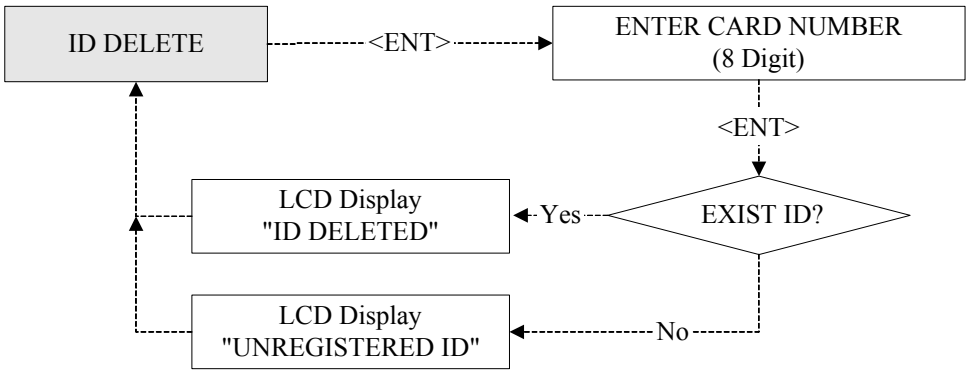
13.3.1 CARD REGISTRATION



ID REGISTRATION	☞. Press <ENT> key to register new User ID.
ID [_____] **PW [____]**	☞. Enter 8 digit Card ID in the ID [_____] field and press <ENT> key. Enter 4 digit Password in the PW [____] field and press <ENT> key. Even you don't use Password, it is necessary to enter 4 digit Password as default. (Example: '0000')
TA__TB__TC__TD__ **RA_ RB_ RC_ RD_**	☞. Enter 2 digit T/S index to TA, TB, TC and TD and <ENT> key. This T/S will be applied to each Reader. Enter <1> key to use the Reader or <0> key for no use and <ENT> key to finish the setting. Example: When you want to apply T/S 01 for Reader#1(TA), T/S 02 for Reader#2(TB), T/S 02 for Reader#3(TC) and T/S 00 for Reader#4(TD) and you want to use Reader#1, #2, #3 only. Press <0><1><0><2><0><2><0><0><ENT> key for T/S Press <1><1><1><0><ENT> key for Reader use/not use
ID Registered	

*** ID number of STAR iTDC-SR is 10 digits decimal number.**

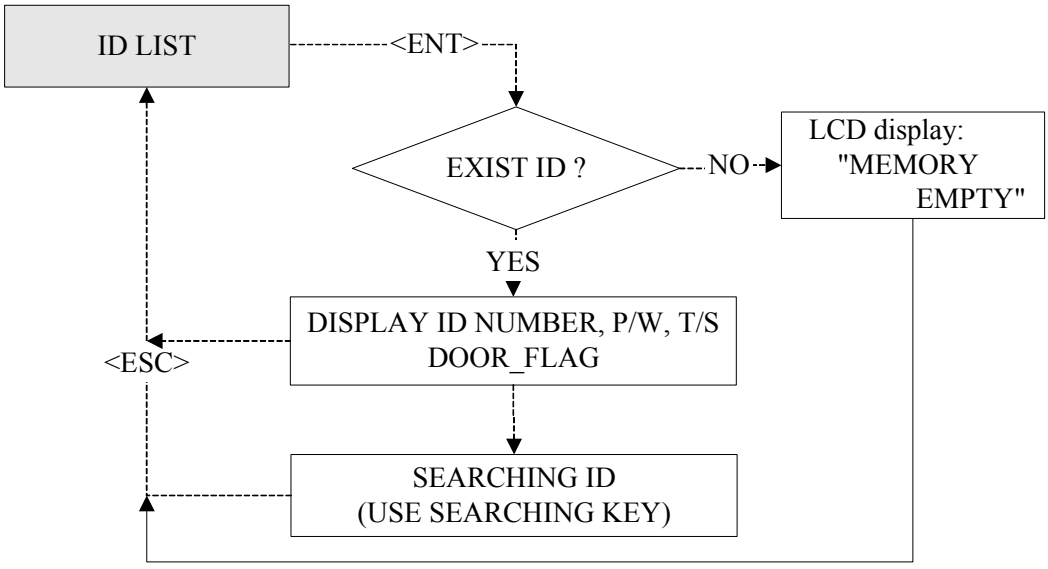
13.3.2 ID DELETE



ID DELETE	☞. Press <ENT> key to delete registered User ID
Enter Card No. **->_____**	☞. Enter 8 digit User ID that you want to delete and <ENT>.
ID Deleted	☞. If the User ID you entered is found, the User ID will be deleted and display “ID Deleted” and if the User ID is not found then only display “ID Unregistered”. You may repeat ID DELETE many times and press <ESC> key to exit the menu.

*** ID number of IDTECK iTDC-SR is 10 digits decimal number.**

13.3.3 ID LIST



ID LIST	☞. If you want to see the list of registered User ID, press the <ENT> key in this menu.
ID[XXXXXXXX] **PW[XXXX]**	☞. 8 digit User ID, 4 digit password and T/S for the readers are displayed on the LCD, and you can scroll up and down the list by pressing <4> and <6> keys. Press <ESC> key to return to the set-up menu.
TA__TB__TC__TD__ **RA_ RB_ RC_ RD_**	
MEMORY **EMPTY**	☞. "MEMORY EMPTY" message will be displayed when there is no registered User ID.
ID LIST TOP	☞. "ID LIST TOP" message will be displayed first when the first registered User ID is displayed on the LCD.
ID LIST BOTTOM	☞. "ID LIST BOTTOM" message will be displayed first when the last registered User ID is displayed on the LCD.

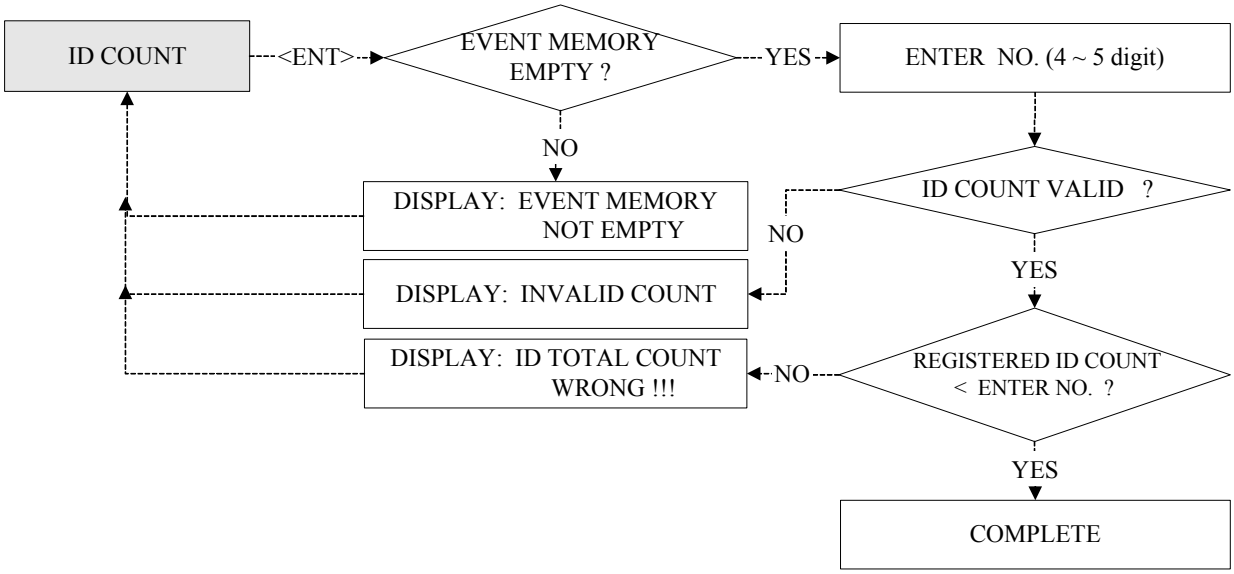
*** ID number of STAR iTDC-SR is 10 digits decimal number.**

13.3.4 REGISTERED ID COUNT

REG. ID COUNT **12345**	☞. This menu displays the total number of registered User ID. It automatically counts when you register or delete User ID. LCD shows 12,345 User ID is now registered in the memory.

13.3.5 ID COUNT

ID COUNT	☞. Press <ENT> key to change maximum ID Count. **Note! This must be set-up first before other set-up.** **Please refer to section 8.5 ID COUNT SETTING.**
ENTER ID COUNT **[_____]**	☞. Enter number from 1000 to 20000 in multiple of 1000 for the maximum User ID count. Example: 1000, 2000, 5000, 10000, 20000. Then press <ENT> key.



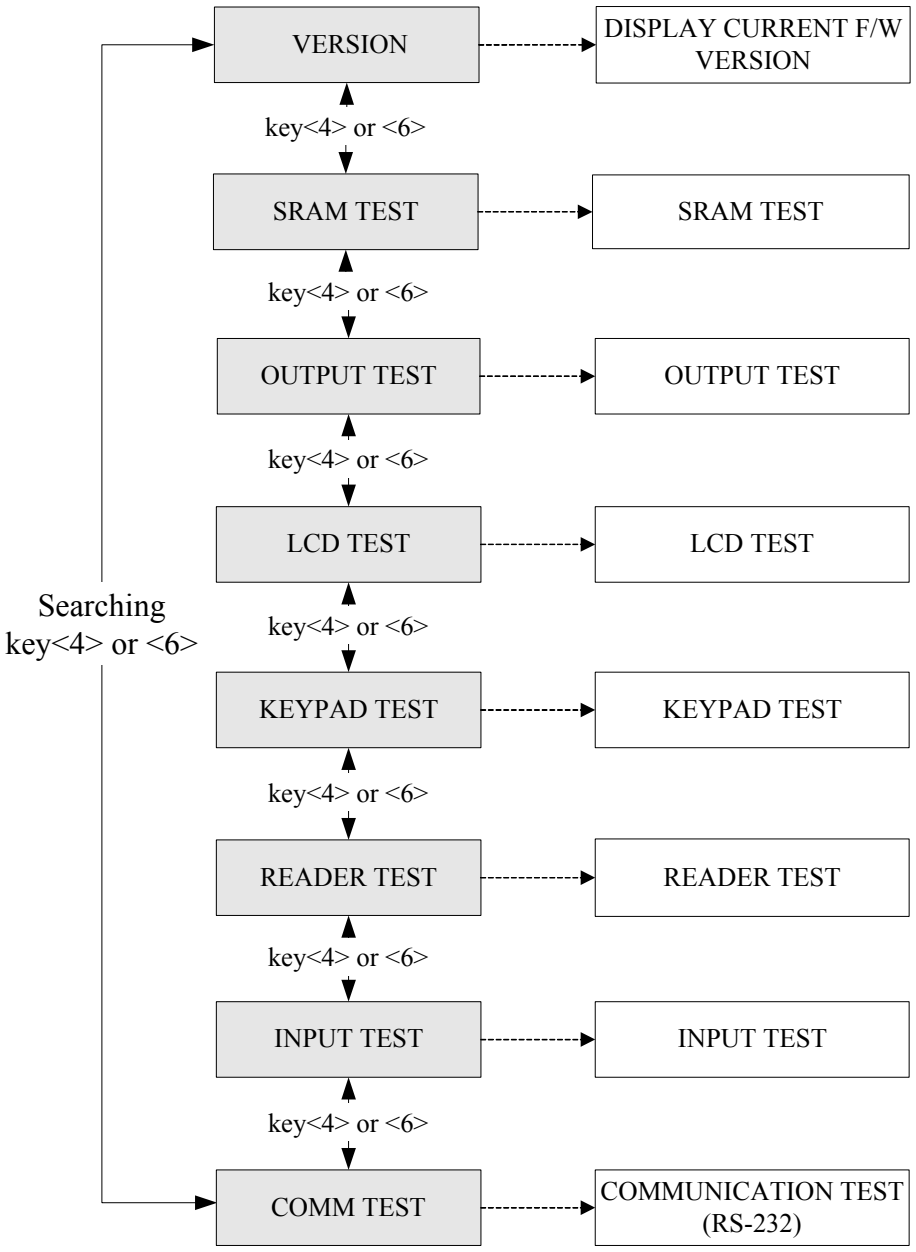
Invalid Count	☞. LCD will display "Invalid Count" error message when you enter the ID Count which is not multiple of 1,000 or the ID Count is not in between 1,000 and 20,000.
EVENT MEMORY NOT EMPTY !!!	☞. LCD will display "EVENT MEMORY NOT EMPTY!!!" error message when you want to change ID Count and there are some events still existing in the Event Buffer.
ID TOTAL COUNT Wrong !!!	☞. LCD will display "ID TOTAL COUNT Wrong !!!" error message when you enter the less ID Count number than the number of User ID registered in the memory. **Note! This must be set-up first before other set-up.** **Please refer to section 8.3 DOOR SETTING.**

13.3.6 STORED EVENT COUNT

EVENT COUNT 12345	☞. This menu displays the total number of event. It automatically counts when you upload to PC. LCD shows 1,234 User ID is now registered in the memory

13.4 SETUP MENU F4

☞. On set-up menu F4, there are self-diagnosis functions to test the performances of the operations. To test, press <ENT> key on the menu.



13.4.1 VERSION CHECK

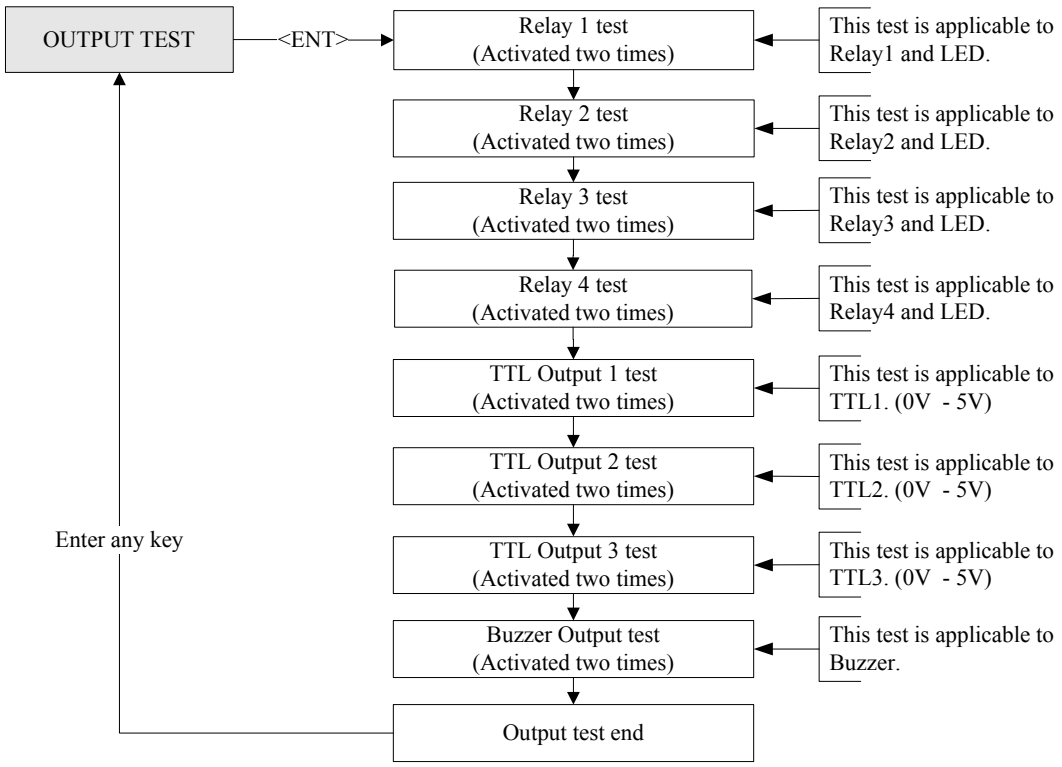
VERSION iTDC: V 3.0	☞. The version of the controller's firmware is displayed on the LCD. Press <4> or <6> key to look for other menus of set-up menu F4.

13.4.2 SRAM TEST

SRAM TEST	☞. To test the SRAM memory, press <ENT> key.
Memory fail!! 00 **RAM testing...**	☞. If the SRAM has problems, LCD will show the memory block number with Memory fail message. In this case, you have to contact technical support. Press any key to return to the set-up menu.
RAM test pass!!! **Press any key...**	☞. If the SRAM is working properly then LCD will show RAM test pass message. Press any key to return to the set-up menu.

13.4.3 OUTPUTS TEST

OUTPUT TEST	☞. To test the outputs, press <ENT> key.
OUTPUT 8 **Press any key..**	☞. The output test will be proceeding for each output twice On and Off. The first 4 test is for output relays (Realy#1~Relay#4) so you can hear the mechanical sound of relays and followed 3 test is for TTL output test. The last test is for built-in buzzer test and you can hear two beep sounds. Press any key to return to the set-up menu.


OUTPUT TEST
<ENT>
Relay 1 test (Activated two times)
This test is applicable to Relay1 and LED.
Relay 2 test (Activated two times)
This test is applicable to Relay2 and LED.
Relay 3 test (Activated two times)
This test is applicable to Relay3 and LED.
Relay 4 test (Activated two times)
This test is applicable to Relay4 and LED.
TTL Output 1 test (Activated two times)
This test is applicable to TTL1. (0V - 5V)
TTL Output 2 test (Activated two times)
This test is applicable to TTL2. (0V - 5V)
TTL Output 3 test (Activated two times)
This test is applicable to TTL3. (0V - 5V)
Buzzer Output test (Activated two times)
This test is applicable to Buzzer.
Output test end
Enter any key

13.4.4 LCD TEST

LCD TEST	☞. Press <ENT> key to continue the test. LCD will display all characters on the screen.
Last Update **Press any key...**	☞. When the test is done. LCD will show "Last Update Press any key…" then press any key to return to the set-up menu.

13.4.5 KEYPAD TEST

KEYPAD TEST	☞. Press <ENT> key to start the keypad test.
0123456789ABCDEF	☞. LCD will display "0123456789ABCDEF" on the bottom line of LCD. Press each key from the keypad then the depressed key will be disappeared from the LCD. Note that F1 key is "A", F2 key is "B", F3 key is "C", F4 key is "D", ESC key is "E" and ENT key is "F" on the screen. After the test is done, it returns to set-up menu.

13.4.6 READER TEST

READER TEST	☞. Press <ENT> key for the reader test.
Scanning ...	☞. LCD will display "Scanning…" for reading the cards. Present the card to one of the readers.
Reader 1 **00312345** Reader # Card #	☞. When the reader successfully read the card, LCD will display reader number and 8-digit card number on the LCD. Press <ESC> key to return to the set-up menu. **ID number of iTDC-SR is 10 digit decimal number.**

13.4.7 INPUT AND DIP SWITCH TEST

INPUT TEST	☞. Press <ENT> key for the input test.

INPUT TEST **11111111 0000000** DIP S/W INPUT	☞. The first 8 digits of the bottom line shows the status of the DIP switch for communication ID setting and “1” indicates the switch ON position and “0” indicates the switch OFF position. The last 7 digits shows the input status and “0” indicates the input port open circuit and “1” indicates the input port short to ground level. Press <ESC> key to return to the set-up menu.

13.4.8 COMMUNICATION TEST

COMM TEST	☞. Before this communication test, RS232: Connect the RS232-RX and RS232-TX wires together. RS-422: Connect the Rx (-) and TX (-), Rx (+) and TX (+) wires. **Note!!** In case of RS422 test, JP3, 4 disconnection and JP5, 6 short after the test is done, short pin1, 2(or 2,3) of the JP3, 4.

TX data = 0 **COMM fail**	☞. This test is a loop test and iTDC sends a character to TX port and check whether the RX port receive the character or not. If you have an error, please contact our service facility.

COMM test pass!! **Press any key...**	☞. After the test is done, LCD will display “COMM test pass!!” Press any key to return to the set-up menu.

14. APPENDIX

A. THE RELATION BETWEEN INPUT AND OUTPUT (DEFAULT)

1. The relation between input and output (2Door set-up: STAR iTDC Board Default)

Index No	Relay#1	Relay#2	Relay#3	Relay#4	TTL#1	TTL#2	TTL#3
[1] Input #1 (Door1 Exit button)	**03**	00	00	00	00	00	00
[2] Input #2 (Door1 Contact SW)	00	**03**	00	00	00	00	00
[3] Input #3 (Door2 Exit button)	00	00	**03**	00	00	00	00
[4] Input #4 (Door2 Contact SW)	00	00	00	**03**	00	00	00
[5] Input #5	00	00	00	00	00	00	00
[6] Input #6	00	00	00	00	00	00	00
[7] Input #7	00	00	00	00	00	00	00
[8] EIO88 Input #1	00	00	00	00	00	00	00
[9] EIO88 Input #2	00	00	00	00	00	00	00
[10] EIO88 Input #3	00	00	00	00	00	00	00
[11] EIO88 Input #4	00	00	00	00	00	00	00
[12] EIO88 Input #5	00	00	00	00	00	00	00
[13] EIO88 Input #6	00	00	00	00	00	00	00
[14] EIO88 Input #7	00	00	00	00	00	00	00
[15] EIO88 Input #8	00	00	00	00	00	00	00
[16] DURESS MODE 1	**03**	00	00	00	00	00	00
[17] DURESS MODE 2	**03**	00	00	00	00	00	00
[18] DURESS MODE 3	00	00	**03**	00	00	00	00
[19] DURESS MODE 4	00	00	**03**	00	00	00	00
[20] OUTPUT Time Schedule	00	00	00	00	00	00	00
[21] INPUT Time Schedule	00	00	00	00	00	00	00
[22] INPUT Type	**01**	**01**	**01**	**01**	**01**	**01**	**01**

Default output setting values of EIO88 Relay#1 ~ Relay#8 are all "00".
INPUT Type: "00"= NC, "01"= NO

2. The relation between input and output (3Door set-up: STAR iTDC Board Default)

Index No	Relay#1	Relay#2	Relay#3	Relay#4	TTL#1	TTL#2	TTL#3
[1] Input #1 (Door1 Exit button)	**03**	00	00	00	00	00	00
[2] Input #2 (Door1 Contact SW)	00	**03**	00	00	00	00	00
[3] Input #3	00	00	00	00	00	00	00
[4] Input #4	00	00	00	00	00	00	00
[5] Input #5	00	00	00	00	00	00	00
[6] Input #6	00	00	00	00	00	00	00
[7] Input #7	00	00	00	00	00	00	00
[8] EIO88 Input #1 (Door2 Exit)	00	00	00	00	00	00	00
[9] EIO88 Input #2 (Door2 Contact)	00	00	00	00	00	00	00
[10] EIO88 Input #3 (Door3 Exit)	00	00	00	00	00	00	00
[11] EIO88 Input #4 (Door3 Contact)	00	00	00	00	00	00	00
[12] EIO88 Input #5	00	00	00	00	00	00	00
[13] EIO88 Input #6	00	00	00	00	00	00	00
[14] EIO88 Input #7	00	00	00	00	00	00	00
[15] EIO88 Input #8	00	00	00	00	00	00	00
[16] DURESS MODE 1	**03**	00	00	00	00	00	00
[17] DURESS MODE 2	**03**	00	00	00	00	00	00
[18] DURESS MODE 3	00	00	00	00	00	00	00
[19] DURESS MODE 4	00	00	00	00	00	00	00
[20] OUTPUT Time Schedule	00	00	00	00	00	00	00
[21] INPUT Time Schedule	00	00	00	00	00	00	00
[22] INPUT Type	**01**	**01**	**01**	**01**	**01**	**01**	**01**

INPUT Type: “00”= NC, “01”= NO

3. The relation between input and output (3Door set-up: EIO88 Extension I/O Board Default)

Index No	Relay#1	Relay#2	Relay#3	Relay#4	Relay#5	Relay#6	Relay#7	Relay#8
[1] Input #1 (Door1 Exit button)	00	00	00	00	00	00	00	00
[2] Input #2 (Door1 Contact SW)	00	00	00	00	00	00	00	00
[3] Input #3	00	00	00	00	00	00	00	00
[4] Input #4	00	00	00	00	00	00	00	00
[5] Input #5	00	00	00	00	00	00	00	00
[6] Input #6	00	00	00	00	00	00	00	00
[7] Input #7	00	00	00	00	00	00	00	00
[8] EIO88 Input #1 (Door2 Exit)	**03**	00	00	00	00	00	00	00
[9] EIO88 Input #2 (Door2 Contact)	00	**03**	00	00	00	00	00	00
[10] EIO88 Input #3 (Door3 Exit)	00	00	**03**	00	00	00	00	00
[11] EIO88 Input #4 (Door3 Contact)	00	00	00	**03**	00	00	00	00
[12] EIO88 Input #5	00	00	00	00	00	00	00	00
[13] EIO88 Input #6	00	00	00	00	00	00	00	00
[14] EIO88 Input #7	00	00	00	00	00	00	00	00
[15] EIO88 Input #8	00	00	00	00	00	00	00	00
[16] DURESS MODE 1	00	00	00	00	00	00	00	00
[17] DURESS MODE 2	00	00	00	00	00	00	00	00
[18] DURESS MODE 3	**03**	00	00	00	00	00	00	00
[19] DURESS MODE 4	00	00	**03**	00	00	00	00	00
[20] OUTPUT TIME SCHEDULE	00	00	00	00	00	00	00	00
[21] INPUT TIME SCHEDULE	00	00	00	00	00	00	00	00
[22] INPUT TYPE	**01**	**01**	**01**	**01**	**01**	**01**	**01**	**01**

INPUT Type: “00”= NC, “01”= NO

4. The relation between input and output (4Door set-up: STAR iTDC Board Default)

Index No	Relay#1	Relay#2	Relay#3	Relay#4	TTL#1	TTL#2	TTL#3
[1] Input #1 (Door1 Exit Button)	**03**	00	00	00	00	00	00
[2] Input #2 (Door1 Contact SW)	00	**03**	00	00	00	00	00
[3] Input #3 (Door2 Exit Button)	00	00	**03**	00	00	00	00
[4] Input #4 (Door2 Contact SW)	00	00	00	**03**	00	00	00
[5] Input #5	00	00	00	00	00	00	00
[6] Input #6	00	00	00	00	00	00	00
[7] Input #7	00	00	00	00	00	00	00
[8] EIO88 Input #1 (Door3 Exit)	00	00	00	00	00	00	00
[9] EIO88 Input #2 (Door3 Contact)	00	00	00	00	00	00	00
[10] EIO88 Input #3 (Door4 Exit)	00	00	00	00	00	00	00
[11] EIO88 Input #4 (Door4 Contact)	00	00	00	00	00	00	00
[12] EIO88 Input #5	00	00	00	00	00	00	00
[13] EIO88 Input #6	00	00	00	00	00	00	00
[14] EIO88 Input #7	00	00	00	00	00	00	00
[15] EIO88 Input #8	00	00	00	00	00	00	00
[16] DURESS MODE 1	**03**	00	00	00	00	00	00
[17] DURESS MODE 2	00	00	**03**	00	00	00	00
[18] DURESS MODE 3	00	00	00	00	00	00	00
[19] DURESS MODE 4	00	00	00	00	00	00	00
[20] OUTPUT Time Schedule	00	00	00	00	00	00	00
[21] INPUT Time Schedule	00	00	00	00	00	00	00
[22] INPUT Type	**01**	**01**	**01**	**01**	**01**	**01**	**01**

INPUT Type: “00”= NC, “01”= NO

5. The relation between input and output (4Door set-up: EIO88 Default)

Index No	Relay#1	Relay#2	Relay#3	Relay#4	Relay#5	Relay#6	Relay#7	Relay#8
[1] Input #1 (Door1 Exit Button)	00	00	00	00	00	00	00	00
[2] Input #2 (Door1 Contact SW)	00	00	00	00	00	00	00	00
[3] Input #3 (Door2 Exit Button)	00	00	00	00	00	00	00	00
[4] Input #4 (Door3 Contact SW)	00	00	00	00	00	00	00	00
[5] Input #5	00	00	00	00	00	00	00	00
[6] Input #6	00	00	00	00	00	00	00	00
[7] Input #7	00	00	00	00	00	00	00	00
[8] EIO88 Input #1 (Door3 Exit)	**03**	00	00	00	00	00	00	00
[9] EIO88 Input #2 (Door3 Contact)	00	**03**	00	00	00	00	00	00
[10] EIO88 Input #3 (Door4 Exit)	00	00	**03**	00	00	00	00	00
[11] EIO88 Input #4 (Door4 Contact)	00	00	00	**03**	00	00	00	00
[12] EIO88 Input #5	00	00	00	00	00	00	00	00
[13] EIO88 Input #6	00	00	00	00	00	00	00	00
[14] EIO88 Input #7	00	00	00	00	00	00	00	00
[15] EIO88 Input #8	00	00	00	00	00	00	00	00
[16] DURESS MODE 1	00	00	00	00	00	00	00	00
[17] DURESS MODE 2	00	00	00	00	00	00	00	00
[18] DURESS MODE 3	**03**	00	00	00	00	00	00	00
[19] DURESS MODE 4	00	00	**03**	00	00	00	00	00
[20] OUTPUT TIME SCHEDULE	00	00	00	00	00	00	00	00
[21] INPUT TIME SCHEDULE	00	00	00	00	00	00	00	00
[22] INPUT TYPE	**01**	**01**	**01**	**01**	**01**	**01**	**01**	**01**

Input type: 00- NC, 01- NO

6. Factory settings on the outputs regarding access attempts
(2Door set-up: STAR iTDC Board Default)

Index No	Relay#1	Relay#2	Relay#3	Relay#4	TTL#1	TTL#2	TTL#3
[1] Reader#1 ID OK	**03**	00	00	00	00	00	00
[2] Reader#1 ID Error	00	**03**	00	00	00	00	00
[3] Reader#1 ID T/S Error	00	**03**	00	00	00	00	00
[4] Reader#1 APB Error	00	**03**	00	00	00	00	00
[5] Reader#2 ID OK	**03**	00	00	00	00	00	00
[6] Reader#2 ID Error	00	**03**	00	00	00	00	00
[7] Reader#2 ID T/S Error	00	**03**	00	00	00	00	00
[8] Reader#2 APB Error	00	**03**	00	00	00	00	00
[9] Reader#3 ID OK	00	00	**03**	00	00	00	00
[10] Reader#3 ID Error	00	00	00	**03**	00	00	00
[11] Reader#3 ID T/S Error	00	00	00	**03**	00	00	00
[12] Reader#3 APB Error	00	00	00	**03**	00	00	00
[13] Reader#4 ID OK	00	00	**03**	00	00	00	00
[14] Reader#4 ID Error	00	00	00	**03**	00	00	00
[15] Reader#4 ID T/S Error	00	00	00	**03**	00	00	00
[16] Reader#4 APB Error	00	00	00	**03**	00	00	00

Factory set values of the EIO88 Expansion I/O board are all '00's.

7. Factory settings on the outputs regarding access attempts (3Door set-up: STAR iTDC Board Default)

Index No	Relay#1	Relay#2	Relay#3	Relay#4	TTL#1	TTL#2	TTL#3
[1] Reader#1 ID OK	**03**	00	00	00	00	00	00
[2] Reader#1 ID Error	00	**03**	00	00	00	00	00
[3] Reader#1 ID T/S Error	00	**03**	00	00	00	00	00
[4] Reader#1 APB Error	00	**03**	00	00	00	00	00
[5] Reader#2 ID OK	**03**	00	00	00	00	00	00
[6] Reader#2 ID Error	00	**03**	00	00	00	00	00
[7] Reader#2 ID T/S Error	00	**03**	00	00	00	00	00
[8] Reader#2 APB Error	00	**03**	00	00	00	00	00
[9] Reader#3 ID OK	00	00	00	00	00	00	00
[10] Reader#3 ID Error	00	00	00	00	00	00	00
[11] Reader#3 ID T/S Error	00	00	00	00	00	00	00
[12] Reader#3 APB Error	00	00	00	00	00	00	00
[13] Reader#4 ID OK	00	00	00	00	00	00	00
[14] Reader#4 ID Error	00	00	00	00	00	00	00
[15] Reader#4 ID T/S Error	00	00	00	00	00	00	00
[16] Reader#4 APB Error	00	00	00	00	00	00	00

8. Factory settings on the outputs regarding access attempts (3Door set-up: EIO88 Default)

Index No	Relay#1	Relay#2	Relay#3	Relay#4	Relay#5	Relay#6	Relay#7	Relay#8
[1] Reader#1 ID OK	00	00	00	00	00	00	00	00
[2] Reader#1 ID Error	00	00	00	00	00	00	00	00
[3] Reader#1 ID T/S Error	00	00	00	00	00	00	00	00
[4] Reader#1 APB Error	00	00	00	00	00	00	00	00
[5] Reader#2 ID OK	00	00	00	00	00	00	00	00
[6] Reader#2 ID Error	00	00	00	00	00	00	00	00
[7] Reader#2 ID T/S Error	00	00	00	00	00	00	00	00
[8] Reader#2 APB Error	00	00	00	00	00	00	00	00
[9] Reader#3 ID OK	**03**	00	00	00	00	00	00	00
[10] Reader#3 ID Error	00	**03**	00	00	00	00	00	00
[11] Reader#3 ID T/S Error	00	**03**	00	00	00	00	00	00
[12] Reader#3 APB Error	00	**03**	00	00	00	00	00	00
[13] Reader#4 ID OK	00	00	**03**	00	00	00	00	00
[14] Reader#4 ID Error	00	00	00	**03**	00	00	00	00
[15] Reader#4 ID T/S Error	00	00	00	**03**	00	00	00	00
[16] Reader#4 APB Error	00	00	00	**03**	00	00	00	00

9. Factory settings on the outputs regarding access attempts (4Door set-up: STAR iTDC Board Default)

Index No	Relay#1	Relay#2	Relay#3	Relay#4	TTL#1	TTL#2	TTL#3
[1] Reader#1 ID OK	**03**	00	00	00	00	00	00
[2] Reader#1 ID Error	00	**03**	00	00	00	00	00
[3] Reader#1 ID T/S Error	00	**03**	00	00	00	00	00
[4] Reader#1 APB Error	00	**03**	00	00	00	00	00
[5] Reader#2 ID OK	00	00	**03**	00	00	00	00
[6] Reader#2 ID Error	00	00	00	**03**	00	00	00
[7] Reader#2 ID T/S Error	00	00	00	**03**	00	00	00
[8] Reader#2 APB Error	00	00	00	**03**	00	00	00
[9] Reader#3 ID OK	00	00	00	00	00	00	00
[10] Reader#3 ID Error	00	00	00	00	00	00	00
[11] Reader#3 ID T/S Error	00	00	00	00	00	00	00
[12] Reader#3 APB Error	00	00	00	00	00	00	00
[13] Reader#4 ID OK	00	00	00	00	00	00	00
[14] Reader#4 ID Error	00	00	00	00	00	00	00
[15] Reader#4 ID T/S Error	00	00	00	00	00	00	00
[16] Reader#4 APB Error	00	00	00	00	00	00	00

10. Factory settings on the outputs regarding access attempts (4Door set-up: EIO88 Default)

Index No	Relay#1	Relay#2	Relay#3	Relay#4	Relay#5	Relay#6	Relay#7	Relay#8
[1] Reader#1 ID OK	00	00	00	00	00	00	00	00
[2] Reader#1 ID Error	00	00	00	00	00	00	00	00
[3] Reader#1 ID T/S Error	00	00	00	00	00	00	00	00
[4] Reader#1 APB Error	00	00	00	00	00	00	00	00
[5] Reader#2 ID OK	00	00	00	00	00	00	00	00
[6] Reader#2 ID Error	00	00	00	00	00	00	00	00
[7] Reader#2 ID T/S Error	00	00	00	00	00	00	00	00
[8] Reader#2 APB Error	00	00	00	00	00	00	00	00
[9] Reader#3 ID OK	**03**	00	00	00	00	00	00	00
[10] Reader#3 ID Error	00	**03**	00	00	00	00	00	00
[11] Reader#3 ID T/S Error	00	**03**	00	00	00	00	00	00
[12] Reader#3 APB Error	00	**03**	00	00	00	00	00	00
[13] Reader#4 ID OK	00	00	**03**	00	00	00	00	00
[14] Reader#4 ID Error	00	00	00	**03**	00	00	00	00
[15] Reader#4 ID T/S Error	00	00	00	**03**	00	00	00	00
[16] Reader#4 APB Error	00	00	00	**03**	00	00	00	00

B. TROUBLE SHOOTING

☞ Broken or abnormal letters show on the LCD, when powered on.	
Cause	SRAM backup battery problem or LCD module problem.
Solution	1. Initialise the controller and set-up the date and time on SETUP MENU F2->SYS INITIALIZE and SETUP MENU F2->TIME SETTING. 2. If you still have problem, please contact a designated service center.

☞ Can I set the controller to operate in RF only mode for one card and in RF+P/W mode for another?	
Cause	N/A
Solution	1. Do not mix the working mode for one Reader. 2. But you can set one reader to operate in RF only mode and another one in RF+P/W mode.

☞ The Set-up mode suddenly goes back to the Normal-operating mode.	
Cause	Time out error
Solution	1. In the Set-up mode, it is programmed to do so when there is no key-in or reading card within 20 seconds.

☞ A valid card became unregistered after batch-downloading IDs from PC.	
Cause	Wrong procedure during download, or a component defect.
Solution	1. The card ID might be registered only to the controller and not registered in PC. The process of downloading IDs, STAR iTDC first erase the ID memory of the unit, therefore if the IDs from the PC didn't contain the card ID, this can happen. 2. Check whether the card ID is registered in PC 3. If not, please register the number and try downloading again. 4. If the trouble remains after the procedure above, contact a designated service center.

☞ **Doesn't enter the Set-up Mode after entering the Master ID "00000000".**	
Cause	The Master ID might be changed or components are defective.
Solution	1. Try changing the Master ID through the application S/W. (It'll be changed to "00000000".) - Note that the Master ID for STAR iTD-SR is 10 times <0>, "0000000000". 2. When it is not feasible, initialise the unit as followings. - Press the two System Initialisation Switches simultaneously while power is on. - Wait until the message 'Initialise END Turn OFF Power…' appears on the LCD and turn it off and on again. Try entering the Set-up mode. - Note that all the value will be set to default, including the IDs after initialising. 3. If the trouble remains after the procedure above, contact a designated service center.

☞ **No problem with accessing by cards, but cannot access with the PIN input.**	
Cause	An error in Set-up or possible component defect.
Solution	1. Check whether a beep sound is generated when you press a key. When it is, the problem may be an error in set-up. Precede followings. - Enter the Master ID ("00000000" default) to enter the Set-up mode. (Note that the Master ID for STAR iTDC-SR is 10 times <0>, "0000000000".) - Press <F1> key. - 'READER 1 MODE' will appear on the LCD, then use the key <6> to choose 'READER1 KEY IN', 'READER2 KEY IN', 'READER3 KEY IN', or 'READER4 KEY IN' and select 'Enable' as wanted. 2. When there is no beep sound or already enabled Key-in functions, contact a designated service center.

☞ **The reader seems to read cards, but the controller does not respond or does not respond properly, such as displaying wrong card numbers in the reader test mode.**	
Cause	Reader defect, wiring error between the reader and the controller, or the electric noises around.
Solution	1. Be sure that the reader reads the card ID when you present a card. 2. Be sure that the reader format is correct. 26bit Wiegand or 34bit Wiegand for IDTECK iTDC-SR 3. Check the wiring between the reader and STAR iTDC. - Check the wires of Wiegand data lines D0 and D1, which is connected correctly. - Connect the controller ground to the ground wire of the reader and it is recommended to connect them to an earth ground. 4. Using oscilloscope, check the shape of signals from the reader at the controller's side. When noises are shown on the signals, it is recommended to use shielded wires and the unused wires to the common ground. You can use repeaters, also. 5. Check the maximum cable length, which may be indicated on the reader manual. 6. If the trouble remains after the procedure above, contact a designated service centre.

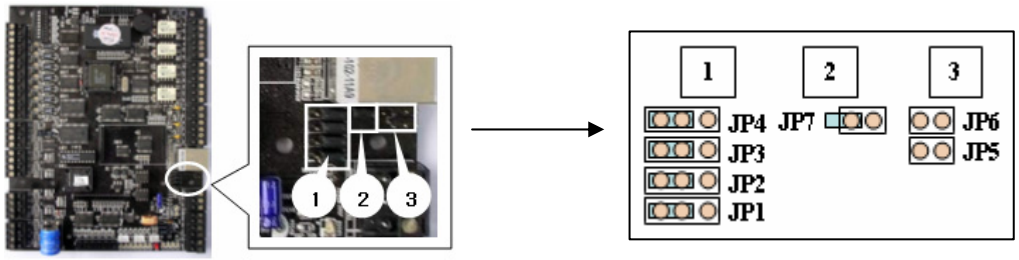
☞ The controller does not communicate with PC.

Cause

Defective cable is used, errors in wiring, an error in setting COMM ID of the controller, or damage on the communication port (either on PC side or on the controller side).

Solution

1. Please, check the settings of the application S/W and the controller.
   - Check the controller's COMM ID is listed on the application S/W.
   - Set the different COMM ID when two or more controllers are installed.
   - Check the communication speed (9600bps default) is the same as the setting on the S/W.
   - Make sure that the PC's COM port is set correctly on the S/W.
   - The parameters at the S/W should be set as follows.
     Parity bit: NONE Data bit: 8bit Stop bit: 1bit
2. RS_422 Jumper



2. Check the line connection for communication.

RS232		RS422 (mono)		
iTDC	PC	iTDC	RS422/232 Converter	PC
TX port	TX	RX(-)	TX(-)	The RS232 cable from the converter
RX port	RX	RX(+)	TX(+)	
GND	GND	TX(-)	RX(-)	
		TX(+)	RX(+)	

RS422 (Multi Drop)			
iTDC	iTDC	RS422/232 Converter	PC
RX(-)	RX(-)	TX(-)	The RS232 cable from the converter
RX(+)	RX(+)	TX(+)	
TX(-)	TX(-)	RX(-)	
TX(+)	TX(+)	RX(+)	

3. In case of setting RS422 communication, recommend to use line-end resistors of 120 Ohm between the RX (+) and RX (-) lines and between the TX (+) and TX (-) lines, and apply the same resistors to the converter RS422 lines. Consult a service centre or an electric technician if you cannot be sure how to do it.
4. When a multi-drop communication doesn't work, test one-by-one communication first.
5. If the trouble remains after the procedure above, contact a designated service centre.

15. FCC Registration Information

FCC REQUIREMENTS PART 15

Caution: Any changes or modifications in construction of this device, which are not expressly approved by the manufacturer for compliance, could void the user's authority to operate the equipment.

NOTE: This device complies with **Part 15 of the FCC Rules**.

Operation is subject to the following two conditions;

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a **Class A Digital Device**, pursuant to **Part 15 of the FCC Rules**. These limits are designed to this equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the radio or television off and on, the user is encouraged to try to correct interference by one or more of the following measures.

1. Reorient or relocate the receiving antenna.
2. Increase the separation between the equipment and receiver.
3. Connect the equipment into an outlet on another circuit.
4. Consult the dealer or an experienced radio/TV technician for help.

16. Warranty and Service

The following warranty and service information applies only to the United States of America and Republic of Korea. For the information in other countries, please contact your local distributor.
To obtain in or out of warranty service, please prepay shipment and return the unit to the service facility listed below.

Headquarters: IDTECK Co., Ltd.
5F Ace Techno Tower B/D,
684-1 Deungchon-Dong, Gangseo-Gu,
SEOUL, KOREA 157-030
Tel: +82-2-2659-0055
Fax: +82-2-2659-0086
E-mail: webmaster@idteck.com
Website: www.idteck.com

U.S Branch: RF Logics Inc.
370 Amapola Ave, #106
Torrance, CA 90501
Tel: 310-782-8383
Fax: 310-782-8298
E-mail: rflogics@rflogics.com
Website: www.rflogics.com

Hong Kong Branch: IDTECK Hong Kong
12/F, B2B Centre, No.36 Connaught Road West, Hong Kong
Tel: 852-2581-9580
Fax: 852-2234-5150
E-mail: alchu@gala.com.hk
Website: www.ristarhk.com

Please use the original container, or pack the unit(s) in a sturdy carton with sufficient packing to prevent damage and include the following information:

1. A proof-of-purchase indicating model number and date of purchase.
2. Bill-to Address.
3. Ship-to Address.
4. Number and description of units shipped.
5. Name and telephone number of person to be contacted.
6. Reason for return and description of the problem (Should be as detailed as possible!)

NOTE: Damage occurring during shipment is deemed the responsibility of the carrier, and claims should be made directly to the carrier.

The specification contained in this manual are subject to change without notice at any time.

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